Genesis Programming and Operations Manual

Hunter®

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INTRODUCTION

The Genesis controller is ideal for golf, commercial, industrial, and agricultural applications. These controllers incorporate the accuracy of crystal and solid state timing with a simple, functional keyboard for programming.

Use them as stand-alone units, with the Genesis central system, or with maintenance radio. Genesis controllers are durable, flexible, and available in 20 to 60-station configurations. But despite their advanced programming capabilities, Genesis controllers are also easy to use.

With the Genesis controller system, you can design the watering plan you need -- for your special requirements.

This Manual is for all Genesis Field Controllers:

- Stand-alone
- Hardwire
- Radio
- Drone (no keypad- program from the Central or the optional WalkPad®)

THE FLEXIBILITY YOU WANT ...

- 20 independent automatic Program Starts that can run in series, parallel, or independently.

- Manual and multiple simultaneous semi-auto programs.

- Operate one to six individual stations manually with selectable Run Times, simultaneously or sequentially.

- Set Starts that cycle (repeat) up to nine times or continuously -- you specify the delay between cycles. Allows water to infiltrate the soil between repeated applications. Useful for keeping newly seeded areas moist, or for sloped areas.

- Semi-automatically start portions of your automatic Programs independently, by Program and Start.

- Set controller to skip days for each Program.

- For water management or seasonal adjustment, you can increase or decrease Run Times, for each Start, from 1 to 512%.

- Control the pump (or master valve) output by Program.

THE DURABILITY YOU NEED ...

- A 10-year lithium battery retains all time and Program settings during power failure or interruption.

- No more blown fuses caused by overloads. The fuse is protected by sensing circuitry that shuts down valves during overload situations. It reports the failure with a message that displays until you clear it.

- Heavy duty input and output lightning protection (*see grounding requirements*).

- Heavy-duty exterior grade, weather-resistant stainless steel or plastic cabinets.

EASY TO PROGRAM ...

- You can set Run Times in either hours:minutes or minutes:seconds.

- It's easy to set Run Times for large numbers of similar sprinklers -- quickly, with a few keystrokes.

- Each Program Start Time has its own independent Run Times.

- You can set the day schedule length to water every day up to every 32 days, by Program.

- Dial up of individual stations in large systems, without clicking buttons to advance.

- Specify End times to prevent watering beyond certain limits.

- Use Couple/MasterCouple to regulate water usage and prevent pressure drop.

KEYBOARD AND DISPLAY

This is the keyboard and display of a typical Genesis Controller. The rectangular window at the top displays messages and other information about the operation of the controller. The keys in the top portion affect programming functions such as Start times, Run Times, schedule, and so on. The keys in the bottom portion are used mostly for data entry.

If you are using the optional WalkPad® portable keypad with a Drone, it will look and function exactly as the permanently installed keypad does, when connected to the controller.

This section explains how to use the various keys and how to interpret the messages that appear in the display window.

START-UP SEQUENCE AND MESSAGES

Upon power-up (or when the optional WalkPad® is first connected to a Drone unit), the display window shows a series of messages that identify and describe the controller (this is called the "billboard"). These messages tell the type, version number, size, and address of the controller as well as other important information. Although the type of controller determines the actual messages, the display follows this general format:

<blockquote>
... testing ...
Vx.xx (version number)
Size = (nn number of stations)
AC =.(nn Hz frequency of power supply)
Address = (nnn) (communications versions only)
MR RunTime =.00:30
MR Pump = Yes
Default Prg = No
(Current Time of Day)
POWER OUTAGE
(if this is the first time you have powered up the unit, or power has been interrupted).
Checking for Irrigation….
</blockquote>

KEY FUNCTIONS

TIME

This section offers a brief explanation of what each key does. You'll find detailed instructions on how to use the functions in the sections that follow: How To Program the Controller, How To Operate the Controller, How To Use the Program/Start Options, How To Use The Program Options, and How To Use the Global Options.

Read or change the time of day. You can also press the TIME key to leave many programming functions without causing any changes to the Program, and return to the time display (think of it as an Escape key).

CALENDAR — DAY CHG

Read or change the schedule length (1-32 days), the day number in the schedule, and the time for the day-change. The system automatically sets the time of day-change to 12 midnight, but you can select any hour on the hour.

For example, if you irrigate from 9 PM to 4 AM and the day changes at midnight, the day-change happens in the middle of your irrigation schedule. But if you set the day-change to 8 PM, all your watering is on the same day, as far as Genesis is concerned.

PROGRAM GROUP

Select, read, write, or change any of the five automatic Programs. You must select a Program before you can execute Days On, Days Off, Start, Run Time, Semi-Auto, or any of the Options.

WATER DAY YES

WATER DAY NO

Read or change the days when each independent Program operates. Select a Program first. Then, press WATER DAY YES for Y (Yes) or WATER DAYS NO for N (No) as the blinking cursor moves to each day in the schedule.

The display window shows only seven days at a time. If there are more than seven days in the schedule, the display rolls to the next string of days. This continues, if necessary, up to 32 days. To advance through the schedule seven days at a time, press CALENDAR.

You must press Enter to save schedule entries.

GROUP START TIMES

Read or change any of the four Start and End times within each independent Program. The Program stops irrigating at the set End time - even if there are stations left to run in the Program.

The End time feature protects you from unintentionally irrigating at the wrong time. It's useful if you're using continuous cycles, or if you're in an area where city ordinances ban irrigation during certain times of the day. You are not required to program an End time.

RUN TIME

Read or change any of the station Run Times. Each Start has its own independent Run Times for each station. First, select a Program, then select a Start. Then, when you first press this key, the display shows the accumulated hours:minutes or minutes:seconds of Run Time within that Program/Start.

Each additional time you press the key, the display advances through the Run Times for each of the stations in the controller.

SEMI AUTO — Begin an automatic Program/start at a particular station and run the balance of that Program automatically. When a Program is running in semi-auto mode and you press this key again, it advances to the next station in that Start.

MANUAL — Set and start from one to six stations in a temporary manual Program. In the manual Program, the system prompts you to select stations, and then set separate Run Times for each (hrs:min or min:secs). The stations can run either sequentially or simultaneously.

When you activate the manual Program, it interrupts all other operations. When the manual Program is finished, the other operations resume at the point where the interruption occurred.

OFF — Stops all stations that are running, including those in manual operation, or engage the Rain Shutdown feature.

Note: If you select a Program or a Program/Start before pressing OFF, only that Program will stop. The Program that stopped will resume when the next scheduled start occurs.

1,2,3, etc. — Choose numbers for Programs, Starts, Run Times, and all numerical entries.

CLEAR — Clear the last entry in the display. You can also press this key to clear error messages from the display.

ENTER — Saves Program or Program changes into memory, and deletes all previous entries in that position. You must also press this key to activate Manual or Semi-Auto operation.

AM/PM ? — Use to select AM or PM when setting time of day (press repeatedly to change back and forth between AM and PM). During option programming and manual programming, **use this key to toggle between selections** any time a question mark (?) appears in the display.

OPTIONS INFO — If you press OPTIONS while the time of day is showing, the display window shows various "global" options, which are options affecting the entire controller. Continue pressing the Options button to cycle through all the option choices. Press ENTER to choose an option to set.

If you press OPTIONS after you've selected a Program, you can view different sets of options related to Programs. Press the OPTIONS key once to get to the option prompt. Select options by number, or press the OPTIONS key repeatedly to advance through the options. Press ENTER to choose an option to set.

For more complete information on options, see these sections: **How To Use the Program/Start Options** and **How to Use the Program Options**.

GLOBAL OPTIONS (when Options is pressed during time display):

Option #1: FC Info (ENTER)

Press ENTER to see the billboard (as described at the front of this section) which will show current configuration of your controller.

Option #2: Address (1-999)

If your Genesis field controller is part of a central computer system, enter a number (1-999) to assign an address to the field controller. It must be the only controller in the system with this address. This number is used when the field unit communicates with the central. If your controller is a stand-alone or Modular controller this feature is not used.

Option #3: MR RunTime (0:30) (RADIO UNITS ONLY)

Sets the default Run Time for Maintenance Radio manual station starts. If you forget to turn a Maintenance Radio-activated station off, this will turn it off for you.

Option #4: MR Pump? Yes (RADIO UNITS ONLY)

Sets whether the pump output will be activated with manual station starts initiated by Maintenance Radio.

Option #5 Xmit tst (ENTER) (RADIO UNITS ONLY)

This is a diagnostic radio test feature. If you press ENTER the local (field controller) radio will transmit a simple tone for approximately 5 seconds, allowing test measurements to be made. A hand-held maintenance radio (walkie-talkie) on the correct frequency will be able to hear the tone and verify that the field controller radio is transmitting.

Option #6: Default Program (YES/NO)

Choose whether the default Program will be loaded into memory after a cold start. For more detailed explanation and illustrations, see the **How To Use the Program Options** section.

PROGRAM OPTIONS (when Options is pressed after a Program # is displayed):

Option #1: Cluster On Times

Set all stations (or a range of stations) within a Program/start to run the same programmable length of time. Enter a single Run Time, then select a range of stations to use it.

Option #2: Copy Run Times

Copy the Run Times from one Start to another Start, within the same Program.

Option #3: Minutes/Seconds?

Set whether Run Times within a Program/start are in increments of minutes, or seconds (Minutes = hh:mm, Seconds = mm:ss, up to 4 hours,15 Minutes or 4 Minutes, 15 Seconds, maximum).
Option #4: Scale

Reduce or increase all Run Times by a selected percentage within each Program/start. Set from 1% to 512% (up to the system limit of 4 hours and 15 minutes).

Option #5: Cycles

Set a Program/Start to repeat from one to nine times, or continuously (0). For example, 2 indicates two cycles of all Run Times. The number 1 indicates one cycle, or normal programmed operation. Caution: A zero causes the cycles to repeat continuously.

To safeguard against unwanted cycles, set an End time. This can be a useful feature for greenhouse applications or for germinating seed.

Option #6: Cycle Delay

Set the length of the delay between repeated cycles in a cycle program. May be up to 24 hrs:mins or 24 min:secs, depending on the Program start's time setting.

Option #7: P# Independent? (Program Classification)

Assign one of three classifications that control the Program Start:

Independent - Start times run exactly when programmed.

Couple - Start times within a Program are not allowed to overlap. If you set times that overlap, the second Start time begins immediately after the first Start time finishes, the third after the second, and so on.

MasterCouple - Start times within the entire *field controller* are not allowed to overlap. Programs and Starts follow in their originally programmed order, but no two Programs or Start times can run simultaneously.

Option #8: Pump (YES/NO)

Enable or disable (turn on or off) the controller pump output by Program.
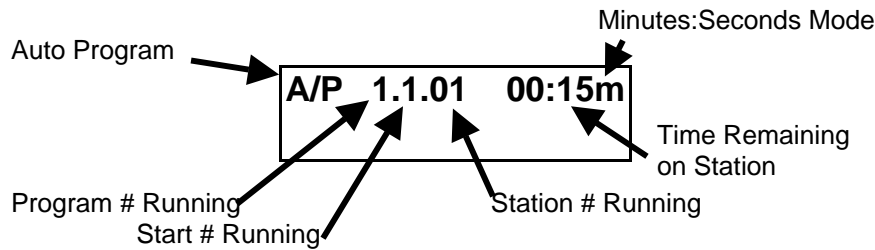
Option #9: Skip Days

Set the Program to skip irrigation days, from one to 999. This causes the Program to suspend for the entered number of days; after the days pass, the Program automatically resumes.

DISPLAY DEFINITIONS

These are the abbreviations used in display messages:

P	= Program	Y	= (Yes) Irrigation Days
T	= Start	N	= (No) Non-irrigation Days
E	= End Time	A/P	= Auto Program Running
Snnn	= Station (nnn is station number)	M/P Seq	= Sequential Manual Prog.
		R/P	= Remote Prog. Running
TOT	= Total Run Time	M/P Sim	= Simultaneous Manual
S	= Minutes:Seconds Mode		Program Running
M	= Hours:Minutes Mode	Dly	= Delay Time Remaining Between Cycles
		MR	= Genesis Maintenance Radio

Here is an example of the display during an irrigation cycle:

Auto Program → **A/P   1.1.01   00:15m** ← Minutes:Seconds Mode

Program # Running
Start # Running
Station # Running
Time Remaining on Station

HOW TO PROGRAM THE CONTROLLER

The following directions show you how to perform some of the most common programming tasks. The symbols at the left of the page show you the correct order for pressing the keys. The explanations at the right tell you what happens as you go through the steps.

Note: In order for the controller to operate Programs automatically, there are three minimum Program elements that must be set up:

Schedule - Starts - Run Times

In most cases, you can always use the Time key as an "Escape" key! If you are unsure of your next step, or get lost in a sub-menu, the Time key will bail you out (it will exit the sub-menu and restore the time display).

1. CHANGE THE TIME OF DAY

TIME — Puts the controller in the proper mode for setting the time. The display shows the current time, for example:

Time 01:07 AM

3 4 5 — Press the number keys for the time you want (the example shows 3:45). As you enter the first number, the display changes to zeros and each new number moves previous ones to the left.

AM/PM ? — Changes the time to PM. The controller assumes AM if you don't change it. Press PM repeatedly to change back and forth between AM and PM.

ENTER — Completes the time setting.

2. SET THE SCHEDULE LENGTH, DAY NUMBER, and TIME OF DAY-CHANGE

CALENDAR
—
DAY CHG

Puts the controller in the proper mode for changing the calendar settings. The display shows the schedule day and length, for example:

Sch length 12/32

(This means day 12 of a 32-day schedule.) The cursor is in the far right position of the schedule length number.

2   8
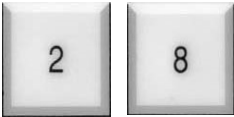
Press the keys for the number of days you want in the schedule (this example shows 28 days). As you enter numbers, previous numbers move to the left.

ENTER

Completes setting the schedule length setting. The cursor moves to the far right position of the day number, for example:

Sch day 12/28

0   1

Press the keys for the number you want to assign to today in the schedule (this example shows day 1).

ENTER

Completes setting the day of schedule. The display shows the current time of day-change, for example:

Day chg 06 PM_

The cursor is in the far right position of the time number.

0   6

Press the number keys for the time you want each irrigation day to change to the next irrigation day. This feature will allow you to run an entire irrigation cycle within the same irrigation day.

If necessary, press PM to change back and forth between AM and PM.

ENTER

Completes the time of day-change setting and restores the time display.

TIP: If you water every day on all programs, create a one-day schedule. Then you are always on Day 1 of a one-day schedule.

3. SET UP A PROGRAM WITH WATERING AND NON-WATERING
   DAYS IN THE IRRIGATION SCHEDULE

PROGRAM GROUP   Puts the controller in the proper mode for changing the Program setting.

The display shows:

Program. . . <u>1</u>

The cursor is positioned under the Program number. If you press the PROGRAM key again, the number advances. Continue to press the PROGRAM key until the number showing is the Program you want to change, or press a number key from 1 to 5.

WATER DAY YES   When you press WATER DAYS ON or WATER DAYS OFF once, the display shows the Program number, the numbers indicating days in blocks of 7, and the first seven days of the schedule.

If the default Program is used, all the days are represented by Y for Yes in Program 1, and N for No in other Programs. For example:

P5 1-7 <u>N</u>NNNNNN

P5 means Program 5. The 1 means the first day in the current display is day #1 of the schedule, and the 7 means the last day in the current display is day #7 of the schedule. The cursor is blinking on the first day of the block of 7 days shown.

Each time you press WATER DAYS YES, the letter Y shows at the cursor position and the cursor moves to the next day. Each time you press WATER DAYS NO, the letter N shows at the cursor position and the cursor moves to the next day. A display showing YNYNYNY, for example, indicates a watering schedule that operates every other day.

You may also press AM/PM SELECT (AMPM?) to simply advance the cursor to the next day without changing the setting.

If your schedule includes more than seven days, the display moves to the next set of seven days as soon as you set day #7. The display shows:

P5 8-14 NNNNNNN

Continue pressing WATER DAYS YES and WATER DAYS NO until days 8 through 14 are set, and so on. You must set up all days in your schedule (32 maximum) with this function.

CALENDAR DAY CHG   Press CALENDAR to advance through the schedule seven days at a time. Useful for reviewing or moving to a specific block of days.

ENTER   Accepts the schedule of watering days -- ON and OFF -- for the Program you specified and advances the display to the first Start of the Program.

TIME   To exit programming, press the TIME key.

Exits the function, restores the time display.

4. SET START TIME FOR A PROGRAM

PROGRAM GROUP   Puts the controller in the proper mode for changing the Program setting. The display shows:

<div align="center">Program. . . 1</div>

The cursor is under the Program number. If you press PROGRAM again, the number advances. Continue pressing PROGRAM until the number showing is the Program you want to change, or press a number key from 1 to 5.

GROUP START TIMES   When you press GROUP START TIMES (key on some models will say only START TIMES, function is identical), the display shows:

<div align="center">P2 T1 = <off></div>

The P2 in this example indicates the second Program, and the T1 indicates the first Start. The word <off> means there is no programmed Start time yet.

3 4 5   Press the number keys for the Start time you want (the example shows 3:45). As you enter numbers, the display changes to zeros and each new number moves previous ones to the left.

AM/PM ?   Changes the time to PM. (Controller assumes AM.) Press AM/PM/? repeatedly to toggle between AM and PM.

ENTER   Accepts the Start time setting.

GROUP START TIMES   Press START TIME again, the display shows:

<div align="center">P2 T1E = <off></div>

The E in this display prompts for an optional End time. If you enter an End time, the controller will stop the watering cycle at that time -- no matter how many minutes of Run Time remain.

To enter an End time, press the number keys, PM, and ENTER as you did to enter the Start time. Or, to skip the End time, press START TIME again to set up another Start time.

The End time feature protects you from unintentionally irrigating at the wrong time. It's useful if you're using continuous cycling during certain hours, or if customers begin to show up at certain times. To remove a Start or End time, press CLEAR; the display will change to zeroes. Press ENTER, and the display will change to <off>.

To continue programming Run Times, select the Start you want to work with, press RUN TIME, and continue with Step #5 (SET RUN TIME).

TIME   Exits the function, restores the time display.

5. SET RUN TIME

First, set up a Program with at least one Start time.

PROGRAM GROUP — Puts the controller in the proper mode for entering or changing a Run Time setting. The display shows:

<div align="center">Program. . . 1</div>

The cursor is at the Program number. If you press PROGRAM again, the number advances. Continue pressing PROGRAM until the number showing is the Program you want to change.

GROUP START TIMES — When you press START TIME, the display shows the Program number, Start number, and actual Start time. For example:

<div align="center">P2 T1 = 03:45 PM</div>

If you press the START TIME key again, the Start or End time number advances (such as P1 T1, P1 T1E, P1 T2, P1 T2E, and so on). Continue to press START TIME until the number showing is the Start you want to set the Run Times for.

RUN TIME — Press RUN TIME once. The display shows:

<div align="center">P2 T2 TOT = <off ></div>

This message shows the total minutes of Run Time set for the Program/start. In this example, no Run Time is programmed yet. Press RUN TIME again. This display shows:

<div align="center">P2 T2 S01 = <off></div>

S01 indicates station #1. If you press RUN TIME again, that number advances. Continue pressing RUN TIME until the number showing is the station you want to set the Run Time for.

Press number keys for the amount of time you want this station to run. (You can use the Option feature after entering all the Run Times to change between the minutes:seconds and hours:minutes modes.)

1   0 — The cursor stays in the far right number position. As you press number keys, each number you enter moves previous ones to the left. This example shows ten minutes:

<div align="center">P2 T2 S02 = 0:10M</div>

ENTER — Accepts the Run Time setting and advances to the next station. Set the Run Time for the next station or keep pressing RUN TIME until you reach the station you want to enter a Run Time for.

CLEAR — To clear a Run Time, press Clear while the station you want to clear is displayed. The display will change to zeroes. Pressing ENTER again will store <off> as the Run Time, and the station will be skipped.

To access the option features, press OPTIONS and continue with How to Use the Program/Options. To leave the programming function:
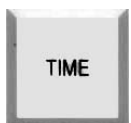
TIME — Exits the function, and restores the time display.

HOW TO OPERATE THE CONTROLLER

The following directions explain some of the most common tasks you may want the controller to perform. The symbols at the left of the page show you the correct order for pressing the keys. The explanations at the right tell you what happens as you go through the steps.

1. START A SEMI-AUTOMATIC RUN AT A PARTICULAR PROGRAM/START AND STATION

A semi-automatic start causes one (or more) of your timed automatic Program Starts to run immediately. First select a Program, then a Start within the Program, and (if you like) a station within that Program Start on which to begin.

When you press PROGRAM, the display shows:

<p align="center">Program. . . 1</p>

PROGRAM — The cursor is at the Program number. If you press PROGRAM (GROUP, in some models) again, the number advances. Continue pressing PROGRAM until the Program number you want to run is displayed, or press a number key from 1 to 5.

SEMI AUTO — If you press SEMI AUTO now, the controller assumes Start #1, Station #1.

The display will show the Program number, Start number, and actual Start time. For example:

<p align="center">P2 T1 = 03:45 PM</p>

START TIMES — If you want to semi-auto start a different Start within the Program, continue to press START TIME until the number showing is the Start you want. The semi-auto cycle begins at the first station of that Start.

Note: If you don't want the semi-auto cycle to begin at the first station of that Start, you can choose a different one. Press RUN TIME until the number showing is the station you want.

SEMI AUTO — Selects semi-auto operation and asks you to confirm the Program/start you have specified.

ENTER — Accepts and completes the semi-automatic setting. All remaining stations will start and run sequentially within that Program.

Note: After you press ENTER to complete the semi-auto function, you may advance to the next station with a Run Time by pressing SEMI-AUTO.

TIME — Exits the function, restores the time display.

2. TURN OFF A SPECIFIC PROGRAM

When you press PROGRAM (GROUP), the display shows:
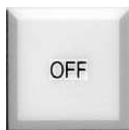
<div align="center">Program. . . 1</div>

The cursor is at the Program number. If you press PROGRAM again, the number advances. Continue pressing PROGRAM until the number showing is the Program you want to turn off ... or press a number key from 1 to 5.

The time display returns. All Starts in the Program you selected are off. If other Programs are set to run at the same time, they will continue to run. The Program you stopped will resume normal operation at the next Start time.

3. TURN OFF ALL PROGRAMS

When you press OFF without selecting a Program, the display shows:

<div align="center">Rain Shutdown?</div>

The time display returns. All Programs are off. This function affects all current Starts within all Programs. The Programs you stopped will resume normal operation at the next Start time.

4. USE THE RAIN SHUTDOWN FEATURE

OFF   When you press OFF without selecting a Program, all irrigation is stopped and the display shows:

<p align="center">Rain Shutdown?</p>

ENTER   Press ENTER to engage the Rain Shutdown feature. The display alternates between the time and this message:

<p align="center">RAIN SHUTDOWN!</p>

All current irrigation is stopped as well as any programmed starts until you return the controller to Auto Operation.

To restart normal operation after a rain shutdown:

OFF   The display shows:

<p align="center">Auto Operation?</p>

ENTER   Press ENTER to restore the system to normal, programmed operation. The time display returns.

Note: To shut down all irrigation for a specified number of days and automatically resume, use Option #6 - Skip Days.

5. OPERATE STATION(S) MANUALLY

The Manual key allows you to operate from 1 to 6 stations manually, either simultaneously or in sequence, for a Run Time of your choosing. If you choose to operate multiple stations manually, Genesis will temporarily assign the manual stations a letter (A through F) for your reference while in the manual displays.

Note: In the Manual function, you can exit by pressing TIME.

To turn on a station in Manual:

MANUAL   Puts the controller in the proper mode for operating a manual sequence. The display shows:

<p align="center">M/P A Sta - -</p>

1   Press the number key for the first station you want to operate, then press ENTER. The display for this example (station #1) shows:

<p align="center">M/P A Sta01 0:00</p>

ENTER

5   Press the number key(s) for the length of Run Time you want at this station. The display for this example shows five:

<p align="center">M/P A Sta01 0:05</p>

| ENTER | Accepts the Run Time length. The display changes to: |

<div align="center">M/P B Sta - -</div>

You can now enter another station number or press ENTER again to stop selecting manual stations. After you have entered all stations, the display shows:

<div align="center">M/P Pump? Yes</div>

To allow the pump to be activated during the manual sequence, press ENTER. If you do not want the pump to be used, press the AM/PM/? (or AM/PM SELECT) key to change the display to:

<div align="center">M/P Pump? No</div>

(When you press PM/? (or AM/PM SELECT) repeatedly, the display toggles back and forth between Yes and No.)

Press ENTER to accept your choice. The display shows:

<div align="center">M/P Minutes?</div>

| ENTER | Accepts the Run Time in minutes mode. If you wish, you can press AM/PM/? to change the prompt to: |

<div align="center">M/P Seconds?</div>

(When you press AM/PM/? repeatedly, the display toggles back and forth between Minutes and Seconds.)

| ENTER | Accepts seconds mode. After you set the time mode, and if you've chosen more than one station to run, the display shows: |

<div align="center">Sequential?</div>

(If you chose only one station, the manual Program begins.)

| ENTER | If you press ENTER here, the stations you've set will run one after the other -- in the order you entered them. If you want to run them simultaneously, press AM/PM/? (or AM/PM SELECT) to change the prompt to: |

<div align="center">Simultaneous?</div>

If you press AM/PM/? repeatedly, the display changes between Simultaneous and Sequential.

Press ENTER to accept the simultaneous setting. All the stations you set will run at once.

OPTIONS

Genesis provides two kinds of Option settings: Global and Program options.

Five "Global" options can view settings or affect the controller as a whole, and are not associated with a particular Program or Program/Start:

Genesis also provides nine Program only options that give you added convenience and flexibility. Most of the options affect a particular Program/Start. (These are discussed in the How to Use the Program/Start Options section.) To use them, you must first select a Program and a Start.

HOW TO USE GLOBAL OPTIONS

Global Options are not linked to any Program or Program/Start, and they affect all operations of the controller.

The Global Options are:

  #1 FC Info (billboard)
  #2 Address
  #3 MR Runtimes (Radio units only)
  #4 MR Pump (Radio Units only)
  #5 Xmit test (Radio Units only)
  #6 Default Programs

TO SET A GLOBAL OPTION

Press the OPTIONS key, with current time in the display.

To select a specific option, you may immediately press the number key for that option, then ENTER,

- or -

Continue pressing OPTIONS until the correct option title shows in the display- then press ENTER.

TO SET THE OPTION

After you select the option, follow the steps for setting that option:

Option #1 – FC Info

This option starts the "billboard" display which shows relevant information about the configuration of your field controller. You cannot change anything from this option field- it is strictly for information. After the "billboard" information has cycled, the display will return to the FC Info option display.

If this is the first time you have applied power to a field controller, or if the controller has experienced a recent power outage, the display will alternate between the Time and POWER OUTAGE. Press CLEAR to remove the POWER OUTAGE message.

Option #2 – Address

This option allows a unique address to be set in a Genesis field controller so that it may be individually identified by the central interface.

When you select Option #2 on a Genesis Field Controller, the display shows:

    Address < x>   (x = address set, 0 = default)

On a Genesis stand-alone or Modular Field Controller, the Address is not used.

Press the number key or keys for the address number you want to assign to the field controller. Valid entries are 0-999. In this example, the address is being set to 5:

    Address 5

Accepts the address setting, and the display shows:

    Address= 5

TIME   Exits the function and restores the time display.

Option #3 – MR runtime (Maintenance Radio Run Times) (Radio Units Only)

This option sets the preset Run Times for stations activated by a Maintenance Radio command. With the "Syringe" option you can set custom Run Times from a hand-held Maintenance Radio; otherwise Maintenance Radio "on" commands will activate the station for the amount of time entered in this field (see the Maintenance Radio section for more details on these functions). The default Run Time is 0:30 minutes. If you wish to change the MR Run Time, enter the time (up to 4 hours, 15 minutes) with the number keys and press ENTER.

Option #4 – MR Pump (Radio Units Only)

This option determines whether the Maintenance Radio station starts will use the Pump output. The default is Yes. If you do not desire the Pump to operate during Maintenance Radio operations, use the AM/PM SELECT (or AM/PM?) key to change the display to No, and press ENTER.

Option #5 – Xmit tst (Radio Units Only)

This is a diagnostic radio test feature. If you press ENTER the local (field controller) radio will transmit a simple tone for approximately 5 seconds, allowing test measurements to be made. A hand-held maintenance radio (walkie-talkie) on the correct frequency will be able to hear the tone and verify that the field controller radio is transmitting.

Option #6 – Default Program

When you select Option #6, the display shows:

<p align="center">Default Prg?   No</p>

This display indicates that the default Program will not be loaded into the controller after a cold start.

If you want the controller to load the default Program, press the AMPM/? (AMPM/SELECT) key. The display changes to:

<p align="center">Default Prg?   Yes</p>

TIME   When the display indicates your choice, press TIME to accept the setting.

Exits the function and returns the time display.

Note: Changes in this option will affect the controller only when it cold starts. If you wish to force a cold start, follow the directions in the section, How To Erase All Programs From Memory.
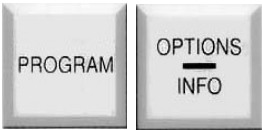
HOW TO USE THE PROGRAM OPTIONS

When you use one of the options in this group, it applies to a specific Program or Program/Start. The Program options that work this way are:

#1	Cluster On Times	#6	Cycle Delay
#2	Copy Run Times	#7	Program Classification
#3	Minutes/Seconds	#8	Pump
#4	Scale	#9	Skip Days
#5	Cycles		

PROGRAMMING OPTIONS

Options	Program	Program/ Start
#1 Cluster On Times		x
#2 Copy Run Times		x
#3 Minutes/Seconds		x
#4 Scale		x
#5 Cycles		x
#6 Cycle Delay		x
#7 Program Classification	x	
#8 Pump	x	
#9 Skip Days	x	

BEFORE YOU SET A PROGRAM OPTION

Use the PROGRAM key to select a Program, then press OPTIONS.

To select an option:

Press the number key for that option, then ENTER,

<p align="center">or</p>

Continue pressing OPTIONS until the correct option title shows in the display.

TO SET THE OPTION

After you select a Program (and a Start, if necessary) and an option, follow the steps for setting that option:

Option #1 - Cluster On Times

With this option, you can set a group or range of stations to run the same length of time. For example, you can set stations #2 through #5 to run ten minutes each.

Select the Program and Start you want to set Run Times for. Then, when you select option #1, the display shows:

<div align="center">Cluster On Times</div>

ENTER Begins the process of setting this option. The display changes to:

<div align="center">RunTime? <off></div>

1 **0** Press number key(s) for the Run Time you want to set for a group of stations. This example shows ten minutes:

<div align="center">Run Time 0:10M</div>

Note: The time mode (M or S) is dependent on the setting of Option #7. If you want to change modes, see Option #7.

ENTER Sets the length of the Run Times in this group of stations. The display shows:

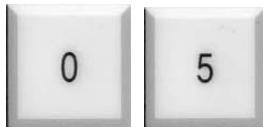<div align="center">From --   To --</div>

0 **2** Press the number key for the first station in the group. If you press ENTER instead of entering a number, the display shows 1.

ENTER Completes your selection of the first station. In this example, the display shows:

<div align="center">From 2 To xx (xx = highest station #in the controller)</div>

0 **5** Press the number key for the last station in the group. In this example, the display shows:

<div align="center">From 02   To 05</div>

Note: If you press ENTER instead of entering a number, the setting will include all stations from the first in the group to the highest station number in the controller.

ENTER Completes the option setting. The display shows:

<div align="center">DONE!</div>

TIME Exits the function, restores the time display.

Option #2 - Copy Run Times

With this option, you can copy Run Times within a Program from one Start to another. For example, in Program #1 you can copy the Run Times already set for Start #1 to Start #2.

First, specify the Program/Start you want the Run Times copied <u>to</u>. Then, when you select option #2, the display shows:

Copy RunTimes?

ENTER   Begins the process of setting this option. The display changes to:

Copy from P1 T?

This example shows that you're in Program #1, and asks which Start to copy <u>from</u>.

1   Press number key(s) for the Start you want to copy Run Times <u>from</u>. The example in this display will copy the Run Times from Start #1:

Copy from P1 T1_

ENTER   Sets the Program to copy the Run Times from Program #1, Start #1. This display shows:

Copied!

TIME   Exits the function, restores the time display.

Option #3 - Hrs:Min or Min:Sec

This option changes the time setting mode for all stations in a Program/Start. The M mode (Hours: Minutes) ranges from 1 minute to 4 hours:15 minutes, in one-minute increments. The S mode (Minutes: Seconds) ranges from 1 second to 4 minutes:15 seconds, in one-second increments.

Select the Program/Start you want to change. Then, when you select option #3, the display shows:

P1 T1 Minutes?

This display indicates the current mode is hours and minutes. Run Time displays in this mode show a letter M:

1:30M

This example means one hour and 30 minutes. If you enter 90 minutes for a Run Time while in this mode, the display shows 1:30M.

AM/PM
?   Changes the mode to minutes and seconds:

P1 T1 Seconds?

Run Time displays in this mode show a letter S:

1:30S

This example means one minute and 30 seconds. If you enter 90 seconds while in this mode, the display shows 1:30S.

If you repeatedly press the AM/PM/? key, the mode toggles between hours:minutes and minutes:seconds. When the mode indicator is correct, press ENTER to accept the data.

TIME   Exits the function and restores the time display.

Option #4 - Scale

With this option, you can scale (increase or decrease) the Run Time of any Program/start by a certain percentage.

Note: To increase the time, set the percentage at more than 100%.
         To decrease the time, set the percentage at less than 100%.

For example, to increase watering time by 50%, enter 150%.

Select the Program/Start you want to change. Then, when you select option #4, the display shows:

Scale?   <100%>

1 5 0   Press number keys for the percentage of Run Time you want.

ENTER   Completes the setting of scaled Run Time. The display shows:

Scaling   150%

Note: The Run Times will show the new scaled times.

Option #5 - Cycles

You can use this option to set all the stations in a certain Program/start to repeat their cycles. For example, this option allows you to run a group of stations several times a day to keep a newly seeded area moist.

Select the Program/Start you want to set repeating cycles for. Then, when you select option #5, the display shows:

P1 T1 Cycles <1>

Number 1 indicates normal programmed operation. You can enter any number up to 9, but be aware that if you enter a zero, the stations in that Program/start will repeat continuously until stopped by a programmed End time, a programmed skip day, or a manual OFF.

Press the number key for the number of repetitions you want. In this example, the display shows the cycle will repeat five times:

P1 T1 Cycles= 5

Completes the option setting. The display shows:

P1 T1 Cycles= 5

Exits the function, restores the time display.

Option #6 - Cycle Delay

This option sets the length of time between repetitions, or cycles, in a cycle Program (see Option #5).

Select the Program and Start you want to set the cycle delay for. Then, when you select option #6, the display shows:

Cycle Dly <off>

The maximum delay time you can Program is 24 hours.

Press the number keys for the length of time you want between repetitions of the watering cycle. In this example, the display shows a 30-minute delay from the end of one cycle to the beginning of another:

Cycle Dly 0:30M

Note: The time mode (M or S) is dependent on the setting of Option #3. To change modes, see Option #3.

Completes the option setting. The display shows:

Cycle Dly= 0:30M

Note: While a Program is in Cycle Delay, the display shows the Program number, start number, and amount of time left in the delay. For example:

<div align="center">A/P 1.1.Dly 0:16</div>

This display shows Automatic Program: Program #1, Start #1, and 16 seconds (or minutes, depending on the mode) left in the delay.

Option #7 - Program Classification

This option changes the Program classification that determines how the Program/Starts operate. Classifications are:

Independent   Starts run exactly as programmed.

Couple   Starts within a Program are not allowed to overlap; they follow each other in order of the programmed Start times. There may be a gap between the end of one Start and the beginning of the next one.

MasterCouple   Start times within the *field controller* are not allowed to overlap. Programs and Starts follow in their originally programmed order, but no two Programs or Start times can run simultaneously.

You can set any number of Programs to any of these options. For example, Programs #1 and #4 could be MasterCouple, #3 and #5 could be Couple, and #2 Independent.

HOW OPTION #7 WORKS:

To better understand how these classifications work, look at the sample Program settings below. Then review the three diagrams that follow. They show how the same set of Programs will run in three different ways, depending on the classification you choose.

Program	Start	Begins	Ends	Run Time
P1	T1	11:30	12:30	60 min.
	T2	12:30	1:30	60 min.
P2	T1	8:00	9:00	60 min.
	T2	8:30	9:30	60 min.
P3	T1	10:30	11:30	60 min.
	T2	10:00	11:00	60 min.

If all three Programs are classified with the Independent Option, they will run in the following order:
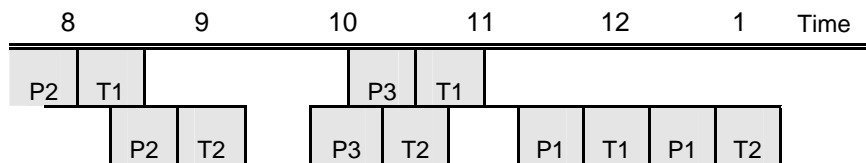

The numbers across the top represent the hours, 8 o'clock, 9 o'clock, and so on. Notice there are gaps between 9 and 10:30, between 9:30 and 10, and another between 11 and 11:30. Between 8:30 and 9 and again between 10:30 and 11, Starts overlap.

With the Coupled Option, the same Programs would run in the following order:

8		9		10		11		1 2		1		2
P2	T1	P2	T2	P3	T2	P3	T1					
							P1	T1	P1	T2		
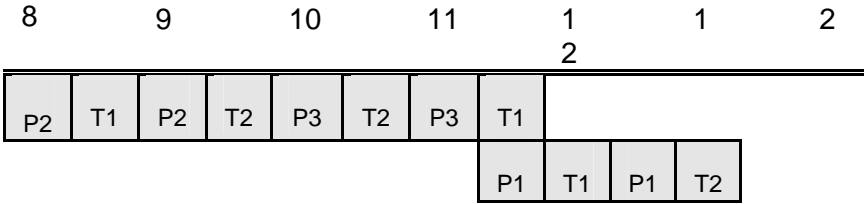
Notice there are no overlaps within Programs, but that Programs 1 and 3 overlap from 11:30 to 12. This option does not close gaps between Start times.

With the MasterCouple option, the Programs in the example would run in this order:

8		9		10		11		12		1		2
P2	T1	P2	T2	P3	T2	P3	T1	P1	T1	P1	T2	
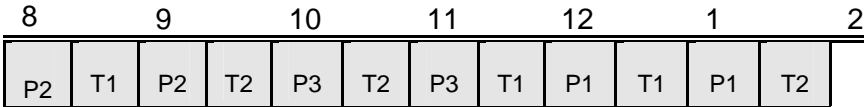
Notice there are no overlaps between Starts or Programs. This option does not automatically close gaps between Programs or Start times.

HOW TO USE OPTION #7:

Select the Program you want to change. Then, when you choose option #7, the display shows:

P1 Independent?

The example in this display indicates that Program #1 is currently set to the Independent classification.

AM/PM ? Changes the classification to Couple.

AM/PM ? If you press AM/PM/? again, the classification changes to MasterCouple.

If you press AM/PM/? repeatedly, the Program classification changes from Independent to Couple, to MasterCouple. It is not necessary to press ENTER to accept data. (ENTER toggles back and forth among the classifications as well.)

TIME Exits the function, restores the time display.

Option #8 - Pump

This option allows you to activate a pump for additional pressure (to account for differences in elevation, distance, or equipment, for example) for the Program you have selected. When you select Yes, the pump is enabled (turned on) when watering occurs during that Program. If you select No, the pump output is disabled (turned off) and the Program operates at standard or normal system pressure. This output also may be used to operate a master valve.

Select the Program you wish to set the pump option on. Then, when you select Option #8, the display shows:

P1 Pump? Yes

This display indicates the pump will be enabled when P1 is running. You can use the AM/PM/? key to toggle back and forth between Yes and No.

AM/PM ?   Changes the display to:

<div align="center">P1 Pump? No</div>

This display shows that the pump will be disabled when P1 is running.

TIME   Exits the function and restores the time display.

<u>Option #9 - Skip Days</u>

This option causes the Program to skip a specified number of days. It can also be used to review the number of days remaining before normal starts resume.

Select the Program you want to skip days. Then, when you select option #9, the display shows:

<div align="center">P1 SkipDays <xxx></div>

7   Press the number key(s) for the number of days you want the Program to skip. In this example, the display shows the Program will skip seven days, then resume normal starts:

<div align="center">P1 SkipDays 7</div>

ENTER   Completes the Skip Days setting and changes the display to:

<div align="center">P1 SkipDays= 7</div>

TIME   Exits the function, restores the time display.

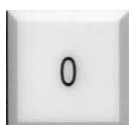# HOW TO ERASE ALL PROGRAMS FROM MEMORY

To erase all Programs and load the default Program (if set in Option #12), follow these steps:

CLEAR   Prepares the system to clear all Programs from memory.

START TIMES   Prepares the system to clear all Start times from memory.

0   Press the zero key to clear all Programs and Start times.

ENTER   Completes the removal of Programs from memory. The display shows:

<div align="center">Cold Start!</div>

This message shows in the display, alternating with the time in hours and minutes.

If the default Program is loaded by Option 12, Cold Start returns all programming to the default setting: Ten minutes Run Time per station, at 10 PM every day, for Program 1, Start 1 only.

CLEAR   Press CLEAR to remove the Cold Start message. The display shows the time in hours, minutes, and seconds.

Maintenance Radio Operations

NOTE: This section pertains to **radio-equipped** Genesis series controllers only. If your controller is hard-wired and uses Maintenance Radio through the central interface (at the computer), please refer to the manual for your central interface for maintenance radio instructions.

Genesis Maintenance Radio is a valuable tool that allows remote control of your irrigation controller by means of a UHF hand-held transceiver- directly to any Genesis Radio series controller.

With the Genesis Maintenance Radio, you can:

• Manually control any valve of any Field Controller (FC) in your system.

• Semi-Auto start a Program/start of any FC, even on a particular station

• Perform timed syringe cycles on up to six valves simultaneously in either HH:MM or MM:SS mode.

• Sequentially step-up/step-down valves on a Field Controller.

All Genesis Radio field controllers have the ability to respond directly to a UHF handheld radio transceiver (on the correct frequency) equipped with a DTMF (dual tone, multi-frequency, or TouchTone®) key pad.

Genesis Radio controllers do NOT require the central computer system to communicate with Maintenance Radio transceivers.

MAINTENANCE RADIO COMMANDS

When executing Maintenance Radio commands, you must:

- Monitor the channel first, to make sure that no voice or Genesis communications are present on the frequency,

- Press and hold in the PTT (Permit To Talk) button, while you

- Enter the commands shown below on the radio keypad.

- Then release the PTT button so that you can hear acknowledgement tones from the field controller.

This section gives you the complete list of GENESIS MAINTENANCE RADIO commands as well as a detailed explanation of each command.

COMMAND LIST

ALL commands begin with the field controller's address ! Genesis Maintenance Radio (StraightTalk) does not normally "log on" to a field controller; each new command is preceded by the desired controller's address, so that you can operate multiple field controllers without logging on and off individual controllers.

The following commands are supported by Genesis Maintenance Radio:

Legend:

aaa   = Field Controller address from 1 to 999

nnn   = Station number from 1 to 60 (103 in Viking versions)

p   = Program number from 1 to 5

s   = Start number from 1 to 4

ttt   = Run Time from 1 to 4:15 HH:MM or MM:SS

One tone   = Successful command (acknowledge)

Two tones   = Bad or incomplete command or no response
from FC.

SYNTAX (keys to press)	**COMMAND** (action taken)
*aaa#nnn#	Turn on station **nnn** at controller **aaa** for default time in minutes. (default time selected at field controller in global options).
aaa#nnn	Turn off station **nnn** at controller **aaa.**
*aaa#970#ttt#	Syringe timing function (Hours:Minutes mode):set active station(s) on for **ttt** Hours:Minutes at controller **aaa**.
*aaa#97p#s##	Semi-Auto start Program **p** Start **s** at station #1.

SYNTAX (keys to press)	**COMMAND** (action taken)
*aaa#97p#s#nnn#	Semi-Auto start Program **p** Start **s** at station **nnn.**

aaa#976	Stop irrigation at controller **aaa**.
*aaa#992#	Enable sequential station operation step up/down (with acknowledgment) at controller **aaa**.
*aaa ##	Step up to next station (after field controller has been accessed with 992# command).
*aaa *	Step down to next station (after field controller has been accessed with 992# command).
aaa#992	Disable sequential station operation (with acknowledgment) at controller **aaa**.

MAINTENANCE RADIO COMMAND DEFINITIONS

(# = "on"   * = "off")

Command	Definition
*aaa#nnn#	This addresses Field Controller # **aaa** and turns on the station number entered as "**nnn**". A single acknowledgement tone will sound on the hand-held if successful.
*aaa#nnn# (continued)	Station **nnn** will be activated for the default time set up in the field controller in the global options, MR runtime. After that time the valve **nnn** will automatically be shut off by the FC.
aaa#nnn	Manually turns station **nnn** off regardless of the time remaining.
*aaa#970#ttt#	Sets up a timed syringe cycle for all currently active stations in Hours:Minutes mode. All of the stations will remain on simultaneously for **ttt** Hours:Minutes (e.g. If you enter the command 970#110#, all active stations will remain on for 1 hour and 10 minutes). After the command has been sent to the FC, you will get a single acknowledge tone if it was successful.
aaa#970#ttt	Sets up timed syringe cycle for all currently active stations in Minutes:Seconds mode. All of the stations will remain on simultaneously for **ttt** Minutes:Seconds (e.g. If you enter the command 970#110*, all active stations will remain on for 1 minute and 10 seconds). After the command has been sent to the FC, you will get a single acknowledge tone if it was successful.
*aaa#97p#s##	Program **p** start **s** will be started semi-automatically beginning with station #1. When the semi-auto sequence is finished, the FC will return to normal operation.
*aaa#97p#s#nn#	Program **p** start **s** will be started semi-automatically beginning with station #**nnn**. When the semi-auto sequence is finished, the FC will return to normal operation.
aaa#976	This command stops all irrigation at the FC **aaa**.
*aaa#992#	Enables the sequential station operation function. Once the command is entered you are able to step-up or step-down one station at a time from the station that was active before the command was issued.

NOTE: IF more than one station was active when the 992# command was sent, only the first station turned on will remain active and be capable of being stepped up or down. If no stations were active, station #1 will be started.

The active valve will remain active for the amount of time selected in the MR runtime options. A single acknowledge tone will be returned if the command was received by the field controller.

*aaa ## | Once the 992# command has been accepted, entering *aaa## on the hand-held will step-up the active station to the next highest station. (e.g.: If station #3 was active, it will shut off and station #4 will be turned on for the default Run Time). If the current station happens to be the highest number station in the controller, station #1 will be activated.

*aaa# * | Once the 992# command has been accepted, entering a *aaa #*on the hand-held will step-down the active station to the next lowest station. (e.g.: If station #3 was active, it will shut off and station

#2 will be turned on for the default Run Time). If the current station happens to be the lowest number station in the controller, the highest station in the controller will be activated.

aaa#992   Disables the sequential station operation and turns off   the active station. A single acknowledge tone will be   returned if the command was completed successfully.

The following is a list of things to remember regarding the operation of Genesis Maintenance Radio:

- Acknowledgment of a legitimate command to the engaged Field Controller (FC) is indicated by a single tone heard on your hand-held transceiver.

- Errors in communication to the FC, as well as illegal commands, are indicated by two tones with about one-half second pause between the two.

- If you make an error and wish to abort the command, release the PTT button on the hand-held and wait for 5 seconds. An error message may be sent, and then you can proceed with a new command.

- When using command 992#, only one station may be active. If multiple stations are active when the 992# command is issued, the first station turned on will be the one that is left active for step-up and step-down. If no stations are running, station #1 will be activated. When the Step-up/Step-down feature is disabled, the *active* station will be shut off.

- If a semi-auto Program is running, the Syringe timing function (970) cannot be used.

- Manually turning on a station (nnn#) overrides existing semi-auto and automatic irrigation currently taking place at the FC.

NOTE: Previously running Programs will only resume if the manual running station times-out on its own, or if the syringe (970) command was used. All other maintenance radio commands will stop all irrigation (manual, semi-auto, and automatic) when stopped by the hand-held.

GLOSSARY OF TERMS

clear

Cancel the last entry. If you make a mistake in entering information, press CLEAR to invalidate your last step. Can also be used, with a series of further steps, to prepare the system for erasing all Programs from memory. Can also be used to remove messages from the display.

cold start

A reset condition that occurs if all user-entered programming is erased from the controller's memory. All the programming is returned to the default settings. Press CLEAR to remove message from the display.

common wires

The path for completing the electric circuit of one or more solenoids. The common wires connect to the ground lug (MP models) or the common terminal on the terminal strip.

cycle

Activation of a controller output for a prescribed period of time. For example, Station 1 (a valve) goes on at 6 AM, runs for 10 minutes, and shuts off at 6:10 AM. That represents one cycle.

day-change

For the controller's purposes, the time one day changes to the next (for example, Monday changes to Tuesday). Adjusting the day-change allows the calendar and the clock to work together more conveniently. By setting the day-change to a time later than midnight, you can control the irrigation schedule to allow watering at night without disruption.

default Program

Program 1 is set to All Days on, Start 1 at 10 PM, all station Run Times set to 10 minutes. All other Programs and starts are set OFF.

End time

A fail-safe feature ... the time when you want watering to cease. This feature guards against an oversight in programming that might allow watering to continue past some critical point. Even if the stations are programmed to run beyond that point, watering stops at the End time you set.

facepack assembly

The keyboard panel (also called a faceplate), the display mechanism, and the CPU board. On drone units, the CPU and WalkPad connector only.

fuse holder

A receptacle that holds the electrical safety device in place (see "fuse") to protect against excessive current draw.

fuse open

A message indicating that the fuse is either missing or needs to be replaced. Message goes away when a good fuse is put into place.

ground wire

A connection between the electrical system and an earth connection (such as a ground rod).

ground rod

A copper bar (minimum 5/8" diameter) embedded in the earth and attached to the ground wire of an electrical system. Used to make a connection with the earth and complete the electrical circuit safely.

grounding lug

A copper fitting on the controller pedestal or MC case - used for attaching the ground wire to the pedestal or case.

hours:minutes

The mode in which the digits on the left represent hours and the digits on the right represent minutes. In this mode, Run Times can range from one minute to four hours and 15 minutes. (For very short cycles, use the minutes:seconds mode. The left digits represent minutes and the right digits represent seconds.)

lightning protection

A system of devices that diminish the chance of damage to the controller components from discharge of atmospheric electricity. The devices are built into the controller, but are effective only if used in a properly grounded system.

manual mode

A function that allows you to operate any station, or series of stations, for an amount of time you specify ... regardless of the programming already in the controller.

minutes:seconds

The mode in which the digits on the left represent minutes and the digits on the right represent seconds. In this mode, Run Times can range from one second to four minutes, 15 seconds. (For longer cycles, use the hours:minutes mode. The left digits represent hours and the right digits represent minutes.)

option

A feature that allows you to customize the controller's operation for special needs or situations. For example, some options provide convenient shortcuts in programming, adjust all Run Times at once, or prevent overlapping of Starts.

output board

The board (also called the "lightning protection board") where valve field wiring is directly attached to the field controller, and which contains the surge protection components for each output. Connected via ribbon cable to the "triac board".

overload

A condition that occurs when the maximum current draw in the system is exceeded. Can be caused by a component failure or excessive demand placed on the controller through improper programming or installation. Press CLEAR to remove message from the display.

pedestal mount

A controller installation where the cabinet either stands alone or is attached to a metal structure, atop a concrete base. (By contrast, a wall mount controller's cabinet is fastened directly to a building surface.)

Program

A set of instructions entered by the user and retained by the controller for activating stations at certain times and for specified lengths of time.

Program/Start

A Program option that affects a specified Start within a Program. Some features in the controller affect entire Programs and others affect only selected starts within a Program.

rain shutdown

A feature that allows you to stop all irrigation at once and have it remain off until the controller is placed back into Auto Operation. Can be used in case of rain or emergency, or if irrigation interferes with some event or activity.

Run Time

The total number of minutes or seconds a single output is activated. Depending on the mode, Run Time can be from one second to four hours and 15 minutes.

scale

A proportional relationship between the Run Time originally programmed and the actual Run Time. The Scale option adjusts the Run Time of a particular Program/start by a certain percentage: To increase Run Time, set the scale to a number greater than 100%. To decrease Run Time, set the scale to a number less than 100%.

schedule

The number of calendar days in the irrigation pattern, as well as identification of day in the pattern. For example, you can specify that today is day 5 of a 28-day schedule.

semi-auto mode

A feature that allows you to start a selected Start within a Program at any time ... regardless of the time that Program is set to begin. All remaining stations will start and run sequentially to the end of that Program.

skip days

An option that allows you to suspend normal operation for a specified number of days.

Start time

The time of day when a cycle begins. For example, Station 1 (a valve) goes on at 6 AM, runs for 10 minutes, and shuts off at 6:10 AM. The Start time for this cycle is 6 AM.

station

A device in the field that responds to a signal from the controller - may be a single valve, a group of valves, lights, or a fountain, for example.

syringe

A brief irrigation cycle. Not intended for deep watering - used for washing or cooling plant surfaces.

triac board

The board which receives electronic outputs from the CPU and converts them to 24VAC outputs to the valve wiring (usually connected to an "output board".

valve outputs

The contact points where valve wires may be attached to the controller. The row of valve outputs is called the terminal strip. Note: Control wiring from other devices, such as lights and fountains, may also be attached to these contact points.

wall mount

A controller installation where the cabinet is attached to a building surface. (By contrast, a pedestal mount controller stands alone on a concrete base.)

TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	SOLUTION
No valves come on.	1. Controller is in SKIP DAYS or RAIN SHUTDOWN. 2. Water or power is off. 3. Display shows fuse open. 4. Common valve wire is loose, disconnected, or broken. 5. Not a programmed Water Day.	1. Review skip option for each Program. 2. Turn on water or power. 3. Change fuse. 4. Check connections, look for break in the common wire going to the valves. 5. Check Program.
One valve does not come on or the display shows overload.	1. Loose wire at terminal strip. 2. Solenoid failure at valve. 3. Wire going to that valve is broken or damaged. 4. No output from the controller to the valve. 5. Exceeded max. number of solenoids allowed on at one time.	1. Tighten loose connection. 2. Replace solenoid. 3. Replace or repair wire. 4. Return output board for repair. 5. Review all Programs running and verify that the load at any one time does not exceed 3A.
A valve stays on.	1. Continuous output voltage at controller. 2. Valve is stuck or damaged. 3. Programmed to run in hours, not minutes.	1. If valve goes off when disconnected, replace and return triac board for repair. 2. Repair/replace valve. 3. Review Program and correct.
Valves come on again when all should be off.	1. The Cycle option has been changed to run more than one time.	1. Review the Cycle option for that Program. 0 = Infinite cycles 1 = Normal, 2 = 2 times, 3 = 3 times, ... and so on.
Failure of any controller feature	1. Processor or component failure.	1. Return the facepack to The factory or the nearest authorized Service Center.
Adjacent station comes on with currently running valve.	1. Tab of triac for current station is touching a triac tab of an adjacent station.	1. Turn power off and separate the triac tabs.

DISPLAY MESSAGES

Cold Start!	1. Someone performed an Erase Program sequence. 2. Battery failure.	1. Press CLEAR to remove message from display. 2. Return the facepack to the factory or the nearest authorized Service Center.
Overload! #nn	1. Solenoid failure at valve nn. 2. Programming error caused too many valves to come on (more than 3 Amps). 3. Wiring to valve is damaged.	1. Replace solenoid at valve nn. 2. Review all Programs and Starts for overlaps. 3. Perform ground fault check on valve wiring and repair or replace if necessary.
Power Outage!	1. Power to the field controller has been interrupted.	1. Press CLEAR to remove message from display.
Fuse Open!	1. Fuse has blown.	1. Check all valve wiring and solenoids for short to ground and replace fuse. (Message will disappear once a good fuse is put into place.)

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