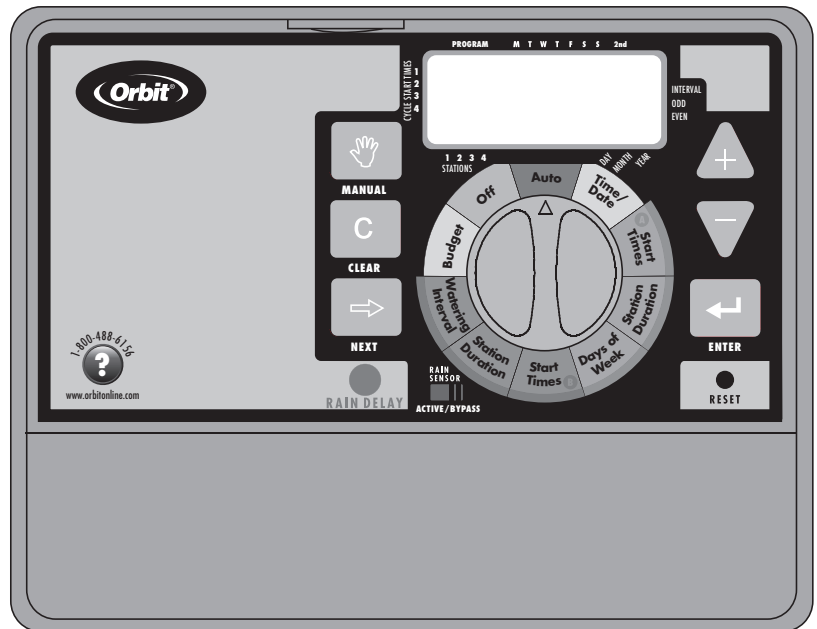




USERS MANUAL

MANUEL DE L'UTILISATEUR

MANUAL DEL USUARIO



MODELS / MODÈLES / MODELOS:

57880, 57881, 57882, 57883, 27780, 27781, 27782, 27783,
91880, 91881, 91882, 91883, 94880, 94881, 94882, 94883

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Help:

Before returning this timer to the store, contact Orbit®

Technical Service at:

Orbit® Technical Service: 1-800-488-6156 or 801-299-5555

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Assistance:

Avant de ramener cette minuterie chez le détaillant, veuillez contacter

le service technique d'Orbit® au:

Service technique d'Orbit®: 1-800-488-6156 ou 801-299-5555

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Sugerencia:

Antes de devolver este temporizador a la tienda, contáctese con el

Departamento de servicios técnicos de Orbit® al 1-800-488-6156
ó 801-299-5555

Section 1: Introduction

Thank you for selecting an Orbit® sprinkler timer. Orbit® designers have combined the simplicity and accuracy of digital electronics to give you a timer that is both easy to program and extremely versatile. The Orbit® timer provides convenience and flexibility, letting you run a fully automatic, a semi-automatic, or a manual watering program for all your watering needs.

Please read the manual completely before you install or use this sprinkler timer.

To assist you, we have included some notable features to this manual.

1. Glossary of the most common terms (see page 17)
2. **Blue Text** relates to the buttons used for programming
3. **Blue Underlined Text** relates to stop positions for both rotary dial and slide switches.

Programming Features

Dual Programs

This Timer has two programs (“**Program A**” and “**Program B**”) that allow you to set up separate watering schedules for your Lawn, Gardens or Shrubs.

Fail-Safe Program

If the timer loses AC power, the existing program, date and time will not be lost. After the AC power returns, the timer will recall the last program into memory. If both the AC power is lost and the battery is dead or missing, the user will have to reprogram the timer.

Water Budgeting

This feature is ideal when adjusting to seasonal watering demands. Instead of reprogramming your timer, the “Water Budget Mode” will enable easy adjustments to watering duration by ten percent increments from 10%-200%. For example, a budget percentage set at 70% will alter a 10-minute preset watering duration to 7 minutes.

Start-Time Stacking

When a start time is set before the previous program has completed, that start time will be “stacked” or delayed, and will start upon completion of the previous program.

Section 2: Getting Started

Programming the timer can be accomplished in just a few basic steps. Before you begin programming, it is important to install the battery, set the time of day and date, and establish a watering plan. **To activate battery, pull the narrow black plastic strip out, this is protruding out the top panel.**

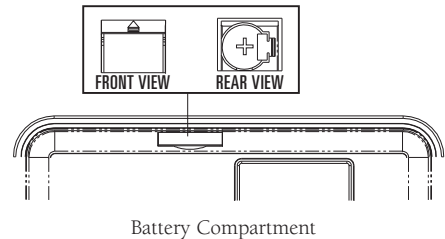
Replacing the Battery

The timer requires one CR2032 Lithium battery to keep the program in memory in case of AC power loss. In a typical installation, the battery should provide sufficient power for approximately one year of protection. Therefore, we recommend changing the battery every year.

- Remove the battery cover by sliding it upward.
- Insert one CR2032 battery into the battery compartment.
- Return the battery cover to its closed position.

A weak or missing battery can cause the time, date, and program to be erased after a power failure. If this happens, you will need to install a fully charged battery and reprogram the timer.

Note: A battery alone will not operate the valves in your sprinkling system. The sprinkler timer has a build-in transformer that must be connected to an AC line voltage source.



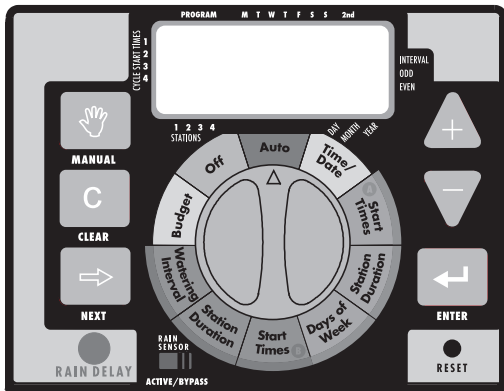
Resetting the Sprinkler Timer

If this is the first time the sprinkler timer has been programmed, you should press the small recessed button labeled **RESET**. Do not press

the **RESET** button again unless you want to completely remove all your programming.

- Use the **▲** and **▼** buttons to set the correct date, then press **ENTER**. The display will show the correct time and date.

Note: If a watering schedule is not entered into the timer, the factory installed fail-safe program will turn on each station every day for 10 minutes. To avoid accidental station activation, either turn the rotary switch to off or enter a watering schedule.



User Controls

Set the Time of Day and Date

- Turn the rotary dial to the **TIME/DATE** position.
- 12:00 PM will appear in the display with three arrows pointing to the year, month, and day. [See Figure 1]
- Press and hold the **▲** button to advance the clock to the correct time of day. Use the **▼** button to go in reverse. When the correct time of day is reached, press the **ENTER** button to lock in the time. To increase or decrease more rapidly, hold down either the **▲** or **▼** buttons until the display goes into rapid advance mode.
- A blinking cursor will appear below the arrow for the year, month, and date when programming.
- Use the **▲** and **▼** buttons to set the correct year, then press **ENTER**.
- Use the **▲** and **▼** buttons to set the correct month, then press **ENTER**.

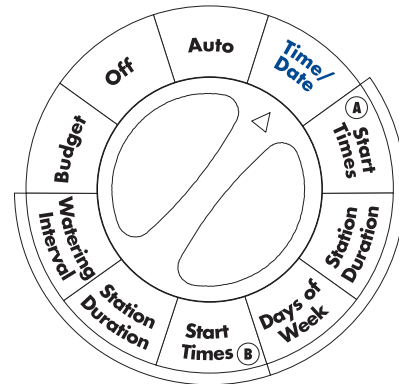


Figure 1: LCD Display with Surrounding Information

Determine a Watering Plan

To help you visualize how best to program the sprinkler timer, it might be helpful to make a watering plan on paper. This will help you establish which days and times you want to water. [See Figure 2]

1. For each station (or valve) write down the watering location, the type of sprinkler head and the plants to be watered.
2. Using this list, determine the recommended watering duration (for each type of sprinkler head and the vegetation to be watered) and frequency for each station.
Important: Identify any imposed watering restrictions through your local water district.
3. Determine, based on step 2, the ideal watering option for each station.

- **Program A** allows you to select specific days of the week to water (e.g. Monday, Wednesday and Saturday) as well as every second day (every other day).
- **Program B** allows you to specify 2 options:
 - **Interval Watering** - Interval watering is used to water at an interval from 1 to 28 days. An interval of 1 will water every day; an interval of 2 will water every other day, etc.
 - **Odd or Even Days** - The sprinkler timer can be selected to only water on Odd days or Even days. The odd/even schedule is based on the date.

Station	Program	Watering Option	Days	Start Time	Duration Minutes	Location	Sprinkler	Plants
1	A	Days of Week	M, W, Sat	5:00 AM	15 min	Front Strip	Spray Heads	Grass
2	A	Days of Week	M, W, Sat		15 min	Front	Spray Heads	Grass
3	A	Days of Week	M, W, Sat		30 min	Back, South	Gear Drive	Grass
4	A	Days of Week	M, W, Sat		30 min	Back, North	Gear Drive	Grass
5	B	Interval	Every 5 days	9:00 AM	30 min	Back	Shrub Head	Shrubs and Flowers
6	B	Interval	Every 5 days		30 min	Front	Shrub Head	Shrubs and Flowers

Figure 2: Creating a Watering Plan

Section 3: Programming

Using your watering plan, determine which program you will need to use (A, B or both A and B) and go to the appropriate section (below) for programming help.

Program A - Day(s) of Week

STEP 1. SET THE “START TIME(S)”

Note: The cycle start time is the time the program begins watering the first station. Cycle start times do not correspond to specific stations.

- Turn the dial to the [CYCLE START TIMES](#) position in “Program A”. The display will show an “A” and a blinking cursor should be next to “Cycle Start Time 1” (on the left side of the LCD). If not, push the [NEXT](#) key until the cursor is next to “Cycle Start Time 1”. [See Figure 3]
- Set the time you want to begin watering for start time 1 using the [▲](#) or [▼](#) keys, then press the [ENTER](#) key. The cursor should now be at “Cycle Start Time 2” and begin blinking.

IMPORTANT: Entering additional start times (2 through 4) will repeat the watering program for the same designated watering day. Generally, only one cycle start time is required for “Program A”.

For more information on “Multiple Start Times” go to the “Automatic Operation and Commonly used Features” section on page 10.

STEP 2: WATERING DURATIONS

To set the duration for each station/zone assigned to “Program A” do the following:

- Turn the rotary dial to the [STATION DURATION](#) position in “Program A”. The display will show an “A” and MINS. [See Figure 4]
- Press the [NEXT](#) key until the cursor blinks over the station first station assigned to “Program A”. Using the “Watering Plan” as our example, this would be station 1. [See Figure 2]

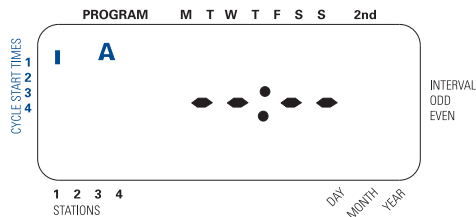
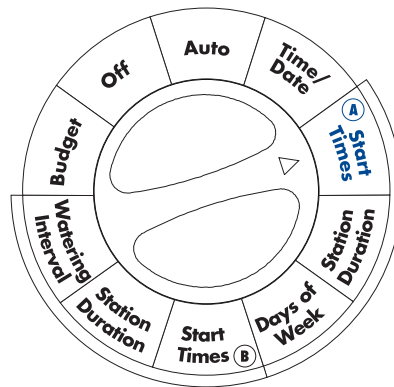
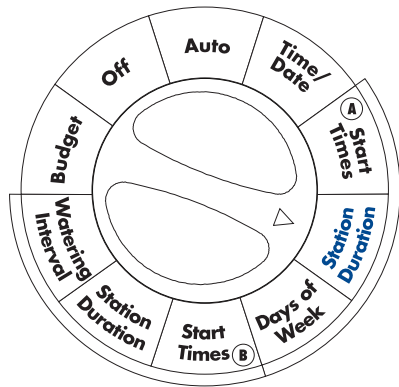


Figure 3: LCD Display with Start Time

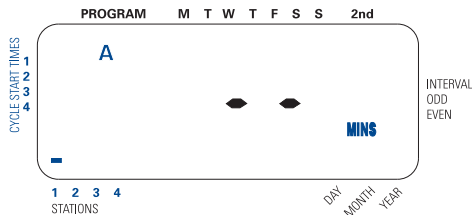
- Press and hold the [▲](#) or [▼](#) key to enter the watering duration and press the [ENTER](#) key. You should see an “A” over the Station just programmed. [See Figure 4]
- Following the steps above, set the watering duration for each remaining station assigned to “Program A” (15 min for station 2 and 30 min for both Stations 3 and 4 in our example).
- To skip a station, press the [NEXT](#) key.
- To erase previously programmed watering durations, press the [CLEAR](#) key.

STEP 3: ASSIGNING WATERING DAYS

- Turn the rotary dial to [DAYS OF WEEK](#) in “Program A”. The



NO DURATIONS ENTERED



ENTERING DURATIONS

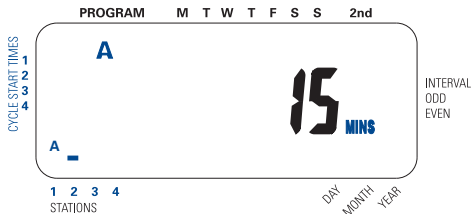


Figure 4: Entering Duration for “Program A”

display will show an “A” and the cursor will blink under the days of week M, T, W, T, F, S, S Monday, Tuesday, etc. [See Figure 5]

- Press **ENTER** to activate watering on Monday. An arrow appears under “M” and the cursor will advance to Tuesday (“T”), press **ENTER** to activate watering on Tuesday or **NEXT** to skip to the next day. [See Figure 5] Repeat these steps for all days of the week.
- To delete a previously entered day, press **CLEAR**.
- If you want to water every second day, press the **NEXT** key to advance the cursor to “2nd”, then press **ENTER**. If you choose to water every 2nd day, you cannot set specific days of the week for watering.

Please proceed to the “Automatic Operation” section if a Program B is not required.

Program B - Interval Watering & Odd and Even Days

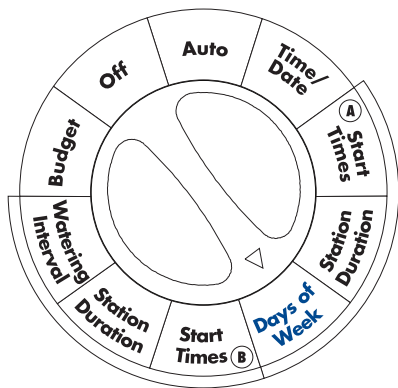
STEP 1. SET THE “START TIME(S)”

Note: The cycle start time is the time the program begins watering the first station. Cycle start times do not correspond to specific stations.

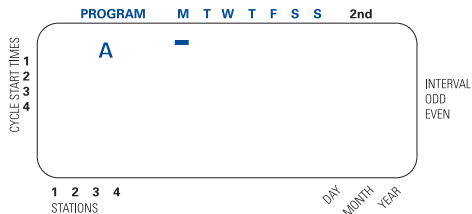
- Turn the dial to the **CYCLE START TIMES** position in “Program B”. The display will show a “B” and a blinking cursor should be next to “Cycle Start Time 1” (on the left side of the LCD). If not, push the **NEXT** key until the cursor is next to “Cycle Start Time 1”.
- Set the time you want to begin watering for start time 1 using the **▲** or **▼** keys, then press the **ENTER** key. The cursor should now be at “Cycle Start Time 2” and begin blinking.

IMPORTANT: Entering additional start times (2 through 4) will repeat the watering program for the same designated watering day. **Generally, only one cycle start time is required for “Program B”.**

For more information on “Multiple Start Times” go to the “Commonly used Features” section on page 10.



NO DAYS ASSIGNED



ENTERING WATERING DAYS

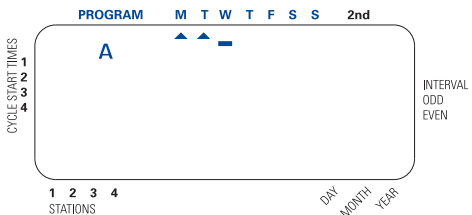


Figure 5: LCD Display with Watering Days

STEP 2: WATERING DURATIONS

To set the duration for each station/zone assigned to “Program B” please do the following:

- Turn the rotary dial to the **STATION DURATION** position in “Program B”. The display will show a “B” and MINS. [See Figure 6]
- Press the **NEXT** key until the cursor blinks over the first station assigned to “Program B”. Using the “Watering Plan” as our example, this would be station 5. [See Figure 2]
- Press and hold the **▲** or **▼** key to enter the watering duration and press the **ENTER** key. You should see a “B” over the Station just programmed. [See Figure 6]
- Following the steps above to set the watering duration for each remaining station assigned to “Program B” (30 min for station 5 and 30 min for Station 6 our example).
- To skip a station, press the **NEXT** key.
- To erase previously programmed watering durations, press the **CLEAR** key.

STEP 3: ASSIGNING WATERING INTERVALS

- Turn the rotary dial to **WATERING INTERVAL**. The cursor will blink to the left of the word Interval. [See Figure 7]
- Press and hold the **▲** or **▼** keys to select the number of days between watering. *Example: If you want to water once every 10 days, set the interval at 10.*
- To activate the watering interval, press **ENTER**. *Example: If an interval of “3” is entered today, the timer will water for the first time today, and then again every “3” days.*
- To select odd or even day watering, press **NEXT**. The cursor will move to either the odd or even setting, then press **ENTER**.
- To erase a schedule, press **CLEAR**. To enter a new schedule, press **NEXT**.

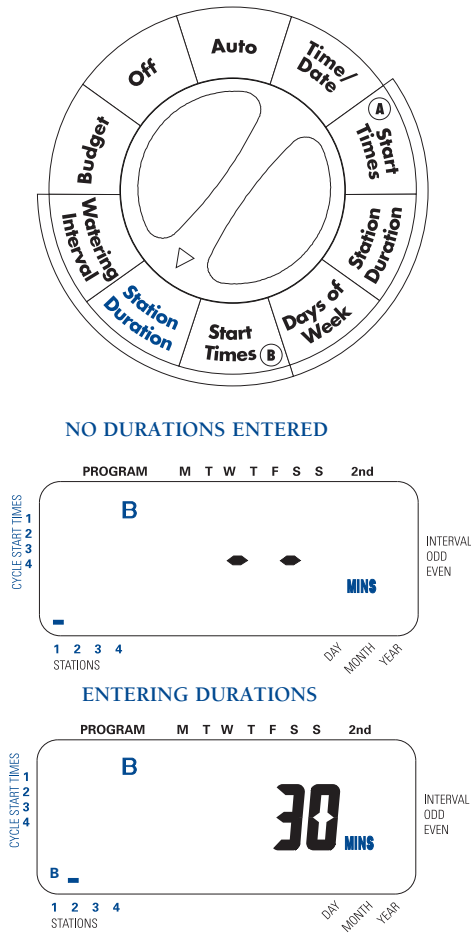


Figure 6: Entering Duration for “Program B”

Reviewing and Changing Your Program

The Orbit timer lets you easily review a complete watering schedule. To review Program A watering start times, simply turn the rotary dial to the [START TIMES](#) position in Program A and check the times that have been entered. Using the [NEXT](#) key, you may advance through the schedule without fear of disturbing any programming.

If you want to change the start times, watering days, or interval, simply follow the directions for that program. After reviewing or changing a watering schedule, remember to turn the rotary dial back to [AUTO](#) if you want the timer to automatically follow the program.

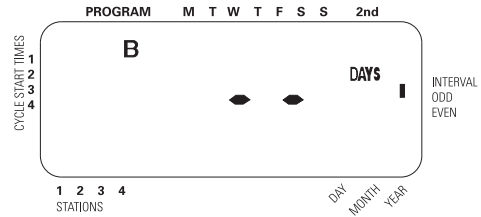


Figure 7: LCD Display with Watering Interval

Section 4: Automatic Operation and Commonly Used Features

Caution: This appliance is not intended for use by young children or infirm persons without supervision. Young children should be supervised to ensure that they do not play with the appliance.

Ready for Automatic Operation

After programming is complete, turn the rotary selector to [AUTO](#). The sprinkler timer is now fully programmed and ready to use in the automatic mode. In automatic mode, each station will operate sequentially, starting with “Program A”.

IMPORTANT: This timer contains a Rain Sensor Bypass Switch. If the rain sensor switch is in the “on” position and no sensor is connected the sprinkler timer will not operate.

Station Advance

When the sprinkler timer is operating, press **NEXT** to end watering at the current station and move on to the next station.

Timer Off

Turn the Rotary Dial to the **OFF** position. This prevents the sprinkler timer from watering in Automatic and Manual modes.

Rain Delay

Rain delay allows you to delay your sprinkler timer from watering for a set period of time. Delay settings are 24, 48, and 72 hours.

ACTIVATE THE “RAIN DELAY” FUNCTION:

1. Ensure the rotary selector is on the **AUTO** position.
2. Press the **RAIN DELAY** button to automatically delay watering for 24 hours. [See Figure 8]
3. If a longer Rain Delay is desired, press and release the **RAIN DELAY** button to increase or decrease the setting.
4. Press **ENTER** or wait 10 seconds and the selected Rain Delay will begin.
5. The **CLEAR** button stops the Rain Delay and scheduled watering will resume.

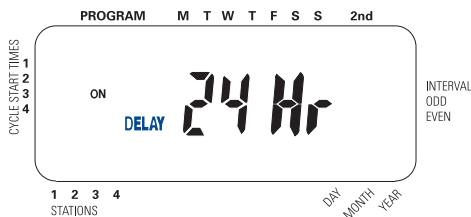


Figure 8: LCD Display with Rain Delay

At the end of the selected Rain Delay amount of time, automatic watering resumes.

While in rain delay mode, the sprinkler timer will display the remaining hours. No other buttons, besides **CLEAR**, will be accepted while the sprinkler timer is in the rain delay mode.

Water Budgeting

Water Budgeting is a simple way to adjust your watering duration to match seasonal watering needs. Water Budgeting works by increasing or decreasing watering duration for all stations in all programs. Adjustment range is from 10% to 200% by increments of 10%. The default value is 100%.

TO SET BUDGETING:

1. Turn rotary dial to **BUDGETING** position.
2. To increase or decrease the percentage, press the **▲** or **▼** button.
3. Press **ENTER** to save setting.

Multiple Start Times

Multiple Start times allow “**Program A**” and/or “**B**” to cycle through each Station/zone and repeat the program again (up to four times) on the days programmed. This is useful for preventing damage to newly seeded lawns and to prevent water waste from run-off on sloped areas. To Set Multiple Start Times

1. Turn rotary dial to **START TIMES** position for “**Program A**” or “**B**”.
2. Press **NEXT** until the cursor blinks at “Cycle Start Time 2”.
3. Use the **▲** or **▼** key to enter the time you want the program to begin watering again and press **ENTER**.
4. Repeat step 3 to program a third and fourth start time if needed.
5. To delete a start time press **NEXT** until the cursor blinks by the start time and press **CLEAR**.

Section 5: Manual Watering

The Orbit® timer has the ability to override the automatic program without disturbing the preset program.

Manually Running Both A and B Programs

- Turn the rotary dial to **AUTO**, then press the **MANUAL** key. The display will show “**AB**” and “**ALL**” blinking. [See Figure 9] This indicates all stations in the “**A**” and “**B**” programs will water for their assigned durations in sequence.
- To activate the assigned water durations in the “**A**” and “**B**” programs for each station, press **ENTER**.

Water durations assigned to station 1 in “**Program A**” will water first, then move to station 1 in “**Program B**” before advancing to the second station and will continue alternating. Only those stations assigned a watering duration will water.

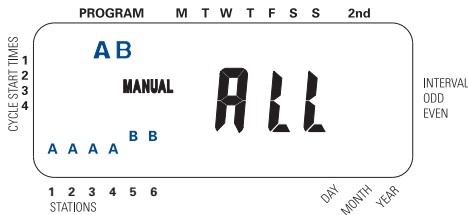


Figure 9: Manually running both programs A and B

Manually Running “Program A” or “Program B”

PROGRAM A

To activate each station’s assigned watering durations for the “**A**” program only, press the **MANUAL** key, followed by the **NEXT** key. This will activate stations with assigned watering durations in the “**A**” program. To initiate watering, press **ENTER**. (All stations cycle once). [See Figure 10]

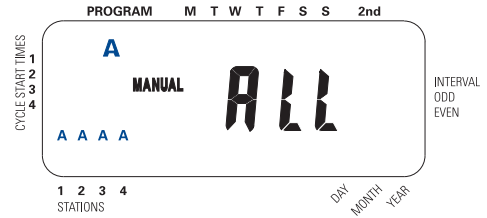


Figure 10: Manual Watering Program A Only

PROGRAM B

To activate each station’s assigned watering durations for the “**B**” program only, press the **MANUAL** key, followed by the **NEXT** key two distinct times. This will activate only those stations with assigned watering durations in the “**B**” program. To initiate watering, press **ENTER**.

- To halt or discontinue manual watering, press the **CLEAR** key once. The timer will revert to your original automatic watering schedule.

Manually Running One or More Stations

The manual operation mode allows you to set durations in any of the stations from 1 to 99 minutes.

- Turn the rotary dial to **AUTO**.
- Press the **MANUAL** key. Then press **NEXT** three times. The display will show a blinking cursor on station 1 along with -- MINS. [See Figure 11]
- To set the number of minutes for watering duration, press and hold the **▲** key to advance to desired number of watering minutes. Use the **▼** key to go in reverse. Press **ENTER** to begin watering.
- To skip a station, press **NEXT** until the cursor is blinking over the station number you wish to program. (Example: To set station 3 for five minutes, press the manual key; then press the **NEXT** key five times to select the manual operation mode and

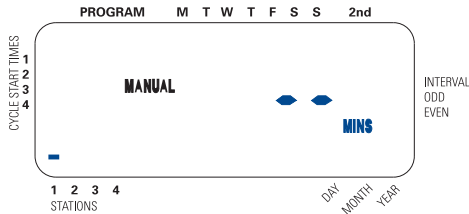


Figure 11: Manually Running Individual Stations

advance to watering for station 3; using the Δ or ∇ key, set the manual watering duration to five minutes; press **ENTER**).

Note: After the **MANUAL** key has been pushed, if a selection is not made within 60 seconds the display returns to the time of day.

- To halt or discontinue manual watering, press the **CLEAR** key once. The timer will revert to your original automatic watering schedule.

Section 6: Sprinkler Timer Installation

Before installation please have the following items and tools.

- Phillips Screwdriver
- Wire Strippers

Installing the sprinkler timer in 5 easy steps

1. Selecting a Location
2. Mounting the Sprinkler Timer
3. Activating the Battery
4. Connecting Valve Wires to Sprinkler Timer
5. Connecting Electrical Power

1. Selecting a Location

Select a location with the following criteria:

- Near a power source (if hard wiring) or electrical outlet (applicable only to U.S. retail timers)
- A location, where operating temperatures are not below 32° or above 158° Fahrenheit (0 degrees or above 70 degrees Celsius)
- A location, with at least 9" of space to the left of the sprinkler timer box for the door to swing open after installation

Note: Sprinkler timers are weather-resistant to UL-50 and ETL® Listings, but should not be placed in areas where continuous water could cause damage.

- A location without direct sunlight
- Access to sprinkler wire (from valves)

Caution: Do not open the Sprinkler Timer when it is raining.

If you are installing this timer in an outdoor location please rotate the thumb lock clockwise (latching the door closed) to prevent damage to the timer from rain. [See Figure 12a] To unlock please rotate the thumb lock counterclockwise. To prevent tampering, a keyed lock may be used (keyed lock not included).

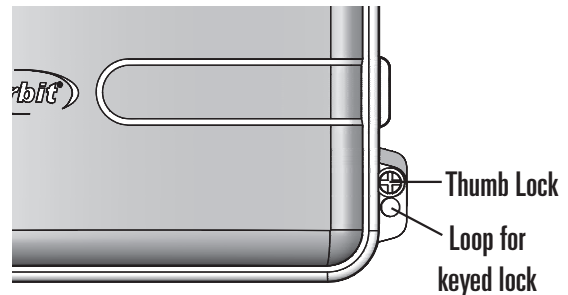


Figure 12a: Latching the door with the Thumb Lock

2. Mounting the Sprinkler Timer

- Use the mounting template (included) to mark the screw locations on the wall.
- Insert a No. 8 screw (included) in the upper mark, leaving the screw head about 1/8" (3mm) out from the wall. (Use the expanding anchors in plaster or masonry if necessary.)
- Slip the keyhole slot in the back of the sprinkler timer over the extended screw. [See Figure 12b]
- Screw a No. 8 screw through the hole located behind the wire shroud cover.

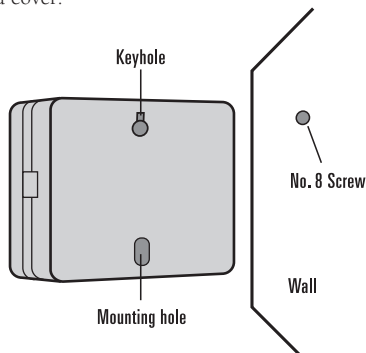


Figure 12b: Mounting the Sprinkler Timer

3. Install the Batteries

One Lithium battery (CR2032) is required to retain the program in memory during power loss. Annual replacement is recommended.

- See page 3 for battery replacement

Note: The battery alone will not operate the valves in your sprinkling system. The sprinkler timer has a build-in transformer that must be connected to an AC line voltage source.

4. Wiring the Electric Valves

Note: If the distance between the sprinkler timer and valves is under 700'

(210 m), use Orbit® sprinkler wire or 20 gauge (AWG) plastic jacketed thermostat wire to connect the sprinkler timer to the valves. If the distance is over 700' (210 m), use 16 gauge (AWG) wire.

- Taking the sprinkler wire, strip 1/2" (12 mm) of the plastic insulation off the end of each individual wire.
- Connect one wire from each valve (it doesn't matter which wire) to a single "Common" sprinkler wire (usually white) [See Figure 13]

Important: All wires should be joined together using wire nuts, solder, and/or vinyl tape. For additional protection to waterproof connections, an Orbit® grease cap can be used.

- Next connect the remaining wire from each valve to a separate colored sprinkler wire.
- To avoid electrical hazards, only one valve should be connected to each station.

Important: The wire can be buried in the ground; however, for more protection wires can be pulled through PVC pipe and buried underground. Be careful to avoid burying the wires in locations where they could be damaged by digging or trenching in the future.

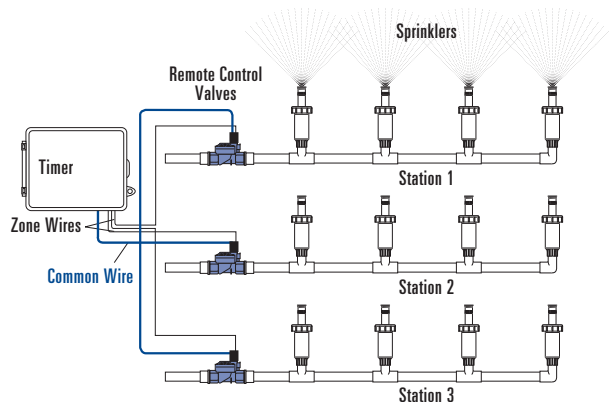


Figure 13: Connecting Sprinkler Wires to Valves

Connecting Valve Wires to the Sprinkler Timer

- Remove the terminal compartment cover.
- Strip 1/4" (6 mm) of the plastic insulation off the end of each wire.
- Determine which valve you want to connect to which station.
- Connect each sprinkler wire (excluding the "Common" wire) to a separate station terminal (numbered above each terminal screw) by inserting the bare wire fully into the hole under each terminal screw. [See Figure 14]
- It may be necessary to open the terminal to allow for wire insertion or removal. To do this, you'll need to use a small Phillips screwdriver.

Note: it isn't necessary to fully remove the screw

- Connect the common wire to the terminal (white in color) labeled "COMMON".

Note: For installation instructions for Pump Start, Master Valve and Rain Sensors see Appendix A.

5. Connecting Electrical Power

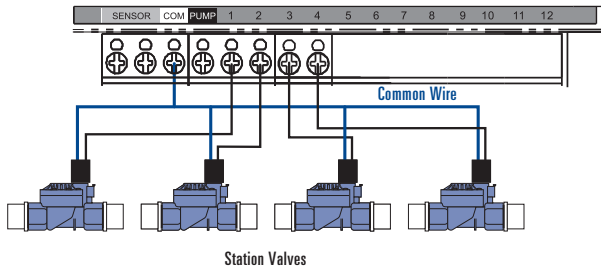


Figure 14: Connecting Sprinkler Wire

Note: For outdoor installation it is recommended that a qualified electrician completes wiring in accordance with electrical codes and regulation. This sprinkler timer is intended for use with a Ground Fault Interrupter (GFI) protected circuit when used outdoors.

Check the model number of your sprinkler timer: various models are configured differently to meet national requirements. The model number can be found on the back of the door, together with other useful information.

FIND YOUR MODEL BELOW AND GO TO THE APPROPRIATE SECTION:

Models 57880, 57881, 57882, 57883, 27780, 27781, 27782, 27783, 91880, 91881, 91882, 91883

- For Indoor mounting go to the [Fitted Line Cord](#) section below.
- For Outdoor mounting go to the [Preparing for Permanent Wiring](#) section below

Models 94880, 94881, 94882, 94883

- Please go to the [Preparing for Permanent Wiring](#) section below.

FITTED LINE CORD INSTALLATION

Replacement of the supply Cord: If the supply cord is damaged it must be replaced by a service agent or similarly qualified person in order to avoid a hazard

- **Indoor Locations** - Insert the line cord into Ground Fault Interrupter (GFI) outlet.
- **Outdoor Locations** - Insert the line cord into a power Ground Fault Interrupter (GFI) outlet connected to a GFI circuit.

PREPARING FOR PERMANENT WIRING

The following three "Pigtail" wires extend out of the bottom of the box:

- Black "pigtail" wire – Hot
- White "pigtail" wire – Neutral
- Green "pigtail" wire –Ground

INSTALLATION USING PERMANENT WIRING

Important: The sprinkler timer has a built-in transformer that must be connected to an AC line voltage source. Check the back of the sprinkler timer box for power requirements. Local building and electrical codes usually require that an approved electrical conduit and electrical fittings be used to connect exterior wall-mounted equipment to AC power. Please check local codes. Any permanent connection should be made by a licensed electrical contractor in accordance with the requirements of the National Electrical Code and other state and local codes.

Caution: Do not connect the sprinkler timer to one phase of a three phase power system used by a pump or other electrical equipment.

Important: This sprinkler timer has a 3/4" knock-out. Use a 3/4" (13mm) waterproof connector to connect the sprinkler timer to a standard electrical junction box. Both connector and junction box must be UL Listed or equivalent or comply with IEC or EN standards or equivalent.

- Turn off the AC power at the AC circuit breaker and apply an appropriate safety lockout. Verify that the power has been turned off to the installation site using an AC voltmeter set for the correct measurement range.
- Use power feed wire of 14 gauge (AWG) minimum with a temperature rating of 155 degrees Fahrenheit (68 degrees Celsius) or higher.
- Install the conduit and associated fittings. Connect the AC electrical power wiring to the source by following all the right codes and local standards.
- Connect the junction box and 3/4" Connector to the Timer (Junction box and Connector not included). [See Figure 15]
- Connect the source power conduit to the entrance of the junction box, following all the appropriate codes.
- Take the cord (running from the timer to the junction box) from the junction box and cut it to length. Remove the outer insulation (from cord) to expose the three wires.
- Connect the source wires to the wires extending from the sprinkler timer.
- Take care to follow the correct color code. For USA: connect

the Green for Ground, Black for Live, and White for Neutral. Often the source ground may be bare copper conductor rather than green wire. For Europe: Live is Brown and Neutral is Blue, there is no ground connection required. Be sure that all wires are connected to the proper source wire.

- Make sure all connections are made with code-approved insulated connectors.
- Be sure to place a weatherproof gasket and lid on the junction box.
- Turn AC power on at the AC circuit breaker.

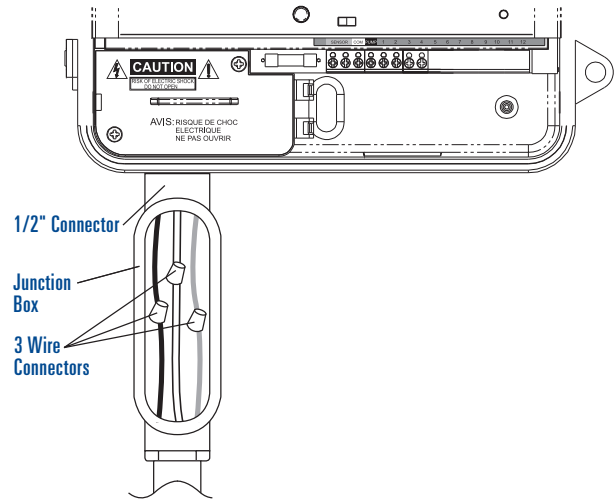


Figure 15: Using a Junction Box

Appendix A: Connecting to a Rain Sensor, Pump Start or Master Valve

Rain Sensor and the Rain Sensor Bypass Switch (sensor sold separately)

A rain sensor or other type of micro-switch weather sensor may be connected to the sprinkler timer. The purpose of the sensor is to stop watering when precipitation is sufficient.

CONNECTING A RAIN SENSOR

- Connect the rain sensor wires to the wiring terminal ports (beige in color) labeled “Sensor” [See Figure A1]

Note: Refer to your rain sensor manual for specific wiring instructions.

- Place the sensor on/off switch to the “on” position to begin operation.

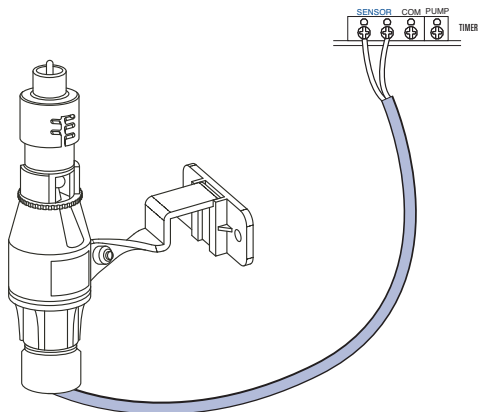


Figure A1: Connecting a Rain Sensor

RAIN SENSOR BYPASS

This sprinkler timer is equipped with a sensor override “on/off” switch. This switch is for use during maintenance and repairs, so the sprinkler timer can be operated even if the rain sensor is in active mode.

IMPORTANT: If the rain sensor switch is in the “on” position and no sensor is connected, the sprinkler timer will not operate. To resume sprinkler timer operation place the switch in the off position

PUMP START & MASTER VALVE

This sprinkler timer allows a master valve or pump start relay to operate whenever a station is on.

Note: If you are activating a pump from this timer, you must purchase a Pump Start Relay.

From the pump start relay (or master valve); connect one wire to the “Pump” terminal and the other wire to the “Common” terminal. [See Figure A2]

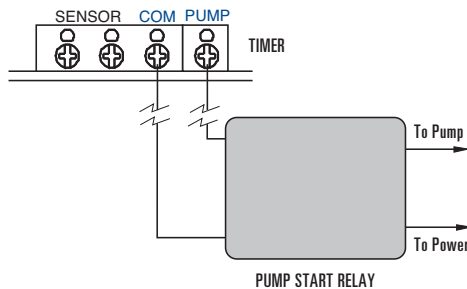


Figure A2: Connecting Pump Start or Master Valve

Glossary of Terms

TERM	DEFINITION
Controller	See sprinkler timer
Cycle Start Time	The time the program begins watering the first station
Irrigation Valve, Automatic	Used in conjunction with sprinkler timers and are a convenient way of delivering water to lawns, plants and gardens
Master Valve	A valve that prohibits water from reaching "Station Valves"
Multiple Start Times	A feature that allows a program to be operated multiple times on the same day
Overlapping Programs	When a "Start Time" is set before the previous program has completed
Program (A, or B)	Consists of 1 or more "Start Time(s)," a "Watering Option" (Days of Week, Interval or Odd/Even Days) and which stations will water
Rain Delay	A feature that prevents the sprinkler timer from running its scheduled watering program for a specific duration
Solenoid	The electrical part on an irrigation valve that opens and closes the valve
Sprinkler Timer	A device that is responsible for turning an automatic irrigation system on and off
Station	An area where the irrigation is all controlled by a single control valve
Valve	See irrigation valve
Watering Option	Consists of Days of Week, Interval or Odd/Even Days use in programming
Watering Program	See program
Zones	See station

FUSE

The 0.75 amp slow-blow fuse provides circuit protection. For replacement, use a 0.75 amp fuse.

Troubleshooting

Problem/Possible Causes

One or more valves do not turn on

1. Faulty solenoid
2. Wire broken or not connected
3. Flow control stem screwed down, shutting valve off
4. Programming is incorrect

Stations turn on when they are not supposed to

1. Water pressure is too high
2. More than one start time is programmed

One station is stuck on and will not shut off

1. Faulty valve
2. Particles of dirt or debris stuck in valve
3. Valve diaphragm faulty

All valves do not turn on

1. Transformer defective or not connected
2. Programming is incorrect
3. Fuse has blown

Timer will not power up

1. Fuse has blown
2. Transformer not plugged into a working outlet

Valves continue to turn on and off when they are not programmed to

1. More than one start time is programmed with overlapping schedules
2. Excessive pressure

Fuse blows repeatedly

1. Short in wiring or solenoids

Help

Before returning this sprinkler timer to the store, contact Orbit® Technical Service at: 1-800-488-6156, 1-801-299-5555

Listings

The sprinkler timer is tested to UL-50 standard and is ETL® listed. Appropriate international models are CSA® and CE® approved.

Trademark Notice

WaterMaster® is a registered trademark of Orbit® Irrigation Products, Inc. The information in this manual is primarily intended for the user who will establish a watering schedule and enter that schedule into the sprinkler timer. This product is intended to be used as an automatic sprinkler timer for activating 24 VAC irrigation valves, as described in this manual.

Warranty and Statement

Orbit® Irrigation Products, Inc. warrants to its customers that its products will be free from defects in materials and workmanship for a period of six years from the date of purchase.

We will replace, free of charge, the defective part or parts found to be defective under normal use and service for a period of up to six years after purchase (proof of purchase required).

We reserve the right to inspect the defective part prior to replacement. Orbit® Irrigation Products, Inc. will not be responsible for consequential or incidental cost or damage caused by the product failure. Orbit® liability under this warranty is limited solely to the replacement or repair of defective parts.

To exercise your warranty, return the unit to your dealer with a copy of the sales receipt.

Questions Please call:
1-800-488-6156 or 1-801-299-5555
www.orbitonline.com

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

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This Class B digital apparatus complies with Canadian ICES-003.