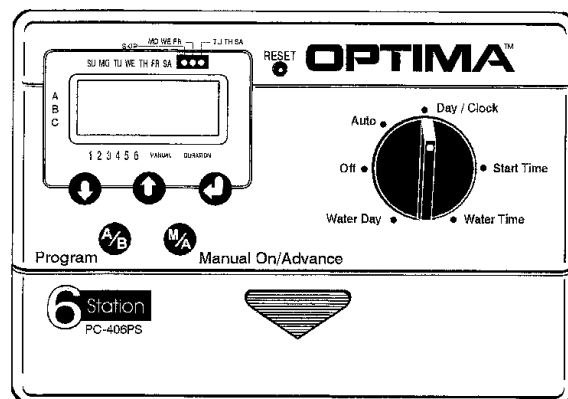


OPTIMA™

AUTOMATIC SPRINKLER TIMER

Owner's Manual PC-306/PC-406PS



For use with standard 24 VAC automatic sprinkler valves. These timers are designed for use in any 110 VAC /60 Hz $\pm 10\%$ AC outlet (240 VAC, 50 HZ for international version). The PC Sprinkler Series Timers provide simple programming and flexible schedules to meet your landscape watering needs. We recommend you read this Owner's Manual completely before installing the timer to ensure proper operation and safety.

Thank you for choosing the OPTIMA PC-306, PC-406PS Timer. Several innovative features allow you the flexibility to tailor your program to fit a variety of watering requirements; and, best of all, it is easy to program!

- Simple to use dials and buttons.
- Three available start times for each program to give you maximum flexibility.
- Off feature allows you to keep all your program settings while turning off your system when you want!

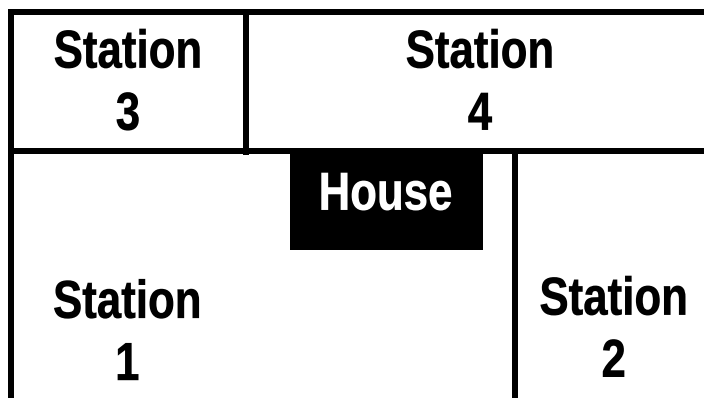
Just in case, if you have questions, please call us toll free at 1-800-742-9922. (U.S.A., Canada & Mexico only).

Optima's PC Series Sprinkler Timer is the central unit that controls watering times for your automatic sprinkler system. The following information provides an overview of how the timer works.

Stations

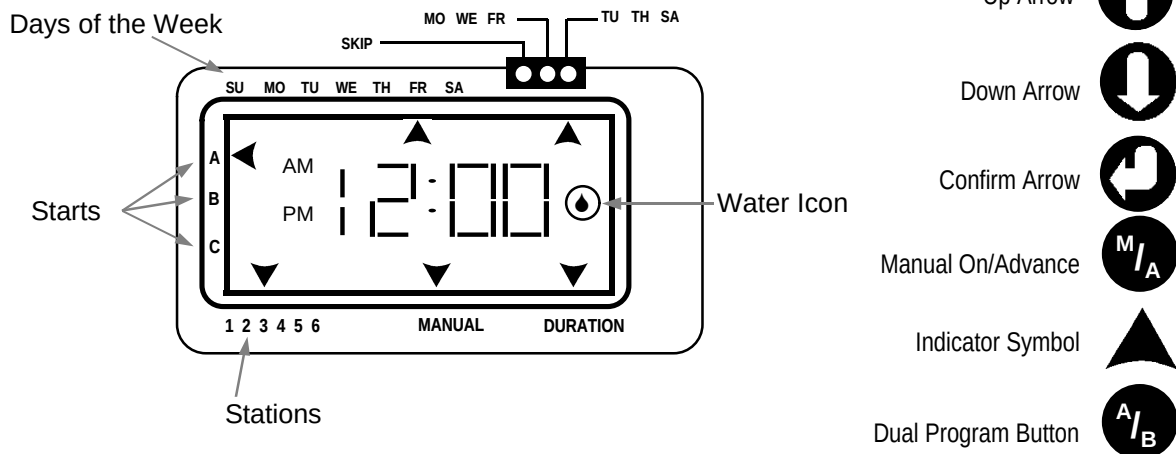
To meet the different watering requirements of your lawn, trees, flowers, and other landscaping, you can divide your yard into separate areas called "stations" or "zones".* Each "station" has one valve that controls multiple spray heads or sprinklers. For example, if you have 4 valves, you can divide your lawn into 4 "stations". See the figure below. (You cannot link more than one valve to one "station.") You can however, select a different length of watering time for each "station".

* In the sprinkler industry, the terms "stations" and "zones" have the same meaning.



"Legend" for this manual is located on the next page.

LEGEND:



Watering Schedule (Days)

You can choose how often to water your lawn in one of three ways: **1)** by Specific Days of the Week (MO, TU, WE, etc.), **2)** by Day Intervals (Every day, Every 2 days or Every 3 days), or **3)** by a choice of MO, WE and FR or TU, TH and SA. A schedule of Specific Days of the Week is especially useful if you live in an area with local water restrictions that limit you to water, for example, on Mondays and Fridays only.

Start Times

You can program your timer to start watering up to three times in one day. For example, you could set watering Start Times of 3 a.m., 6 a.m., and 6 p.m. The system would then turn on the lowest numbered station at 3 a.m., and would sequentially turn on the next station when that one has finished. Only one station is watered at a time. The same cycle would repeat, beginning at the next scheduled Start Time, in this example at 6 a.m.

Watering Duration

Each "station" can be scheduled to water for a different length of time, from 1 to 99 minutes. For example, you might program Station 1 (your front lawn) to water for 5 minutes and program Station 2 (your flower bed) to water for 10 minutes at each Start Time.

TOOLS YOU NEED

- Phillips head screwdriver
- Four #10 screws 1 1/4"
- 9 volt alkaline battery
- 18 gauge color-coded, multi-strand direct burial wire for runs of less than 800 feet
(For longer than 800 feet runs, use 14 gauge color-coded, multi-strand direct burial wire)
- Watertight splice connectors
- Plastic mounting anchors - optional

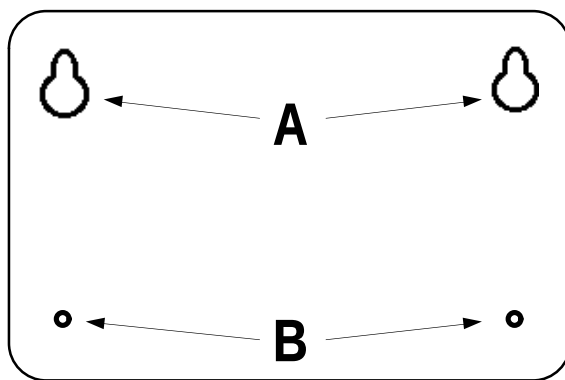
HOW TO INSTALL

STEP 1: CHOOSE TIMER LOCATION

Select an INDOOR location near a standard 120 volt AC electrical outlet (240 Volt outlet for 50 HZ units). The location should be completely protected from moisture, direct sunlight and below freezing temperatures. **(Important: DO NOT plug in the transformer until you have made all wiring connections.)**

WARNING: When choosing a location, to avoid possible damage to the timer:

- DO NOT install in area where temperatures are less than 32° F or higher than 120° F.
- DO NOT install on same wall socket as other high current draw products such as garage door opener, washer/dryer, air conditioner, etc.
- DO NOT install on outlet controlled by on/off switch.



NOTE: You may install the timer using two screws aligned horizontally.

1. Screw two #10 screws into the wall 3 1/2" (88 mm) apart leaving 1/8" to 1/4" (3.2-6.4 mm) of the head extended from the wall. If mounting on plaster or masonry walls, plastic anchors may be required.
2. Place the two keyholes "A" on the back of the timer over the screws.
3. To further secure the unit, open compartment cover and place screws (1 1/4" minimum length) through the lower two "B" holes.

STEP 3: WIRE VALVES

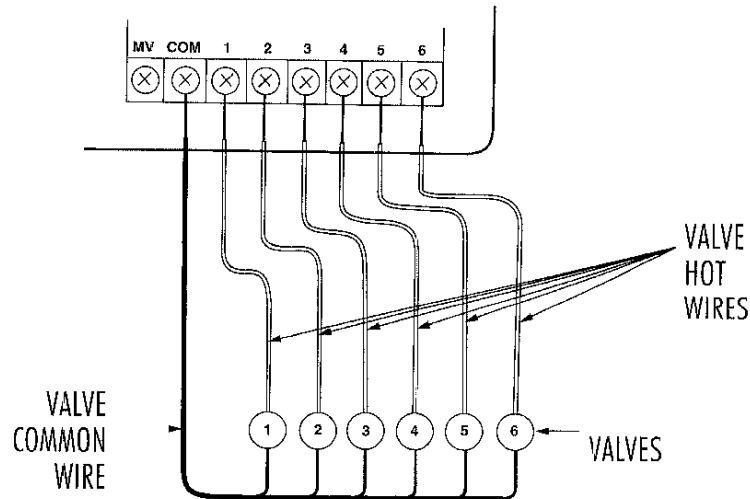
1. Choose Wire (wire not included)

For runs of less than 800 feet, use 18 gauge color-coded, multi-strand direct burial wire. For runs of longer than 800 feet, use 14 gauge color-coded, multi strand direct burial wire. Be sure the wire has the number of strands equal to the number of valves used PLUS ONE for the Common Wire (e.g. use 5 strand wire if there are 4 valves).

TIP: Spare wire strands maybe taped off for possible future expansion or trouble shooting use. Wire that will be buried underground should have watertight connections and be approved for underground use. Avoid placing underground wire in locations where it may be disturbed by digging or other movement.

2. Connect Valve Wiring to Timer

To open wiring area on timer, push the cover down over bottom panel. To lift panel, push in on panel and push bottom down. Each valve connects to the timer through two wires. One wire (usually the white strand) is connected as the "common" wire. All common wires should be spliced together at the valves to become a single wire that will connect to the terminal marked "COM". The second or "hot" wire (usually the color-coded strand) from each valve connects to one of the terminals numbered 1-6. See figure on next page.

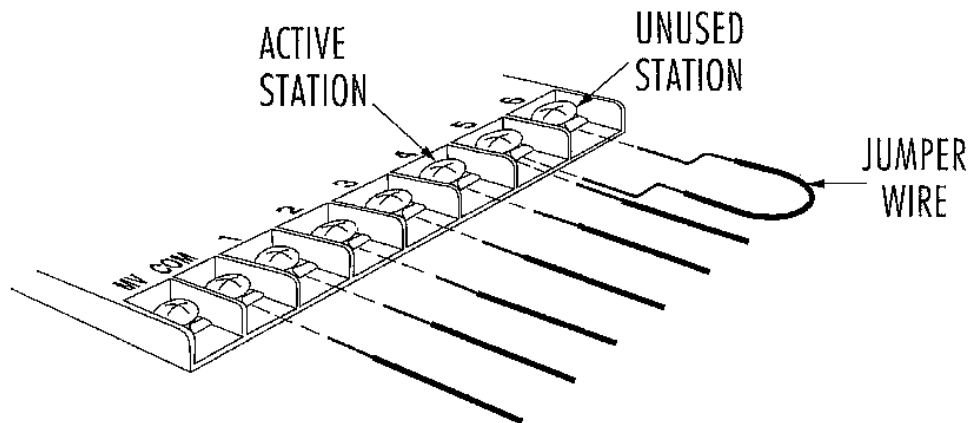


Connect the one common wire (usually the white strand) to the terminal labeled "COM". Connect the second "hot" wire (usually the color-coded strand) from each valve to one of the terminals numbered 1 -6 on the number of stations on your timer model. Connect wire from valve 1 to terminal 1, valve 2 to terminal 2, etc.

NOTE: Be sure the wire connections are tight and make good contact. Also, it is recommended that you join all splices with watertight splice connectors to prevent corrosion.

CAUTION: Wire only one valve to each terminal. Wiring more than one could result in damage to the timer. Also, if using more than one timer, do not share "common" wires between the multiple timers.

TIP: To avoid possible pump damage, "jumper" wire each unused terminal screw to a terminal screw in use, (if you are using a pump start relay). See figure below.



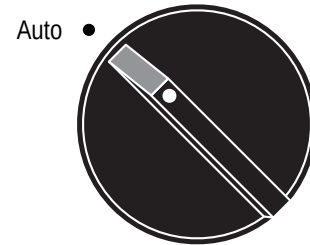
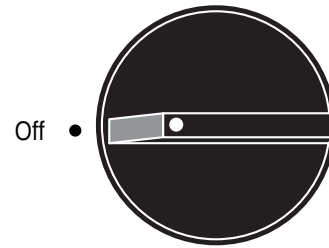
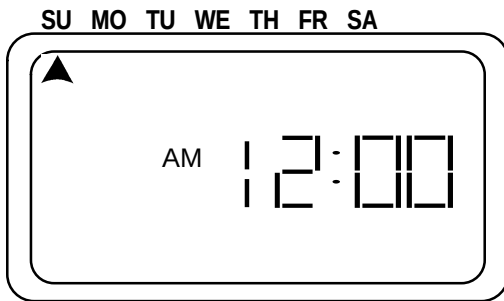
NOTE: Check local regulations to ensure compliance with any wiring, electrical or installation codes.

STEP 4: CONNECT TRANSFORMER

1. Turn dial to Off.

NOTE: In Off position display will be blank.

2. Plug pigtail connector (located at the end of transformer wire) into the two prongs to the left of the battery holder located under the cover of the timer.
3. Plug transformer into electrical socket.
4. Turn dial to Auto. The following display should appear:



TIP: If display does not come on, check the electrical outlet.

CAUTION: DO NOT plug in the transformer until you have completed and checked all wiring connections. DO NOT link two or more timers together

STEP 5: CONNECT BATTERY

Connect a 9 volt alkaline battery (not included) to the battery terminal and place it in the designated position. DO NOT USE A RECHARGEABLE BATTERY. In the event of a power outage, the battery will temporarily preserve your Schedule (newly installed batteries can preserve programs for up to 1 month, see note*). Watering will not occur until electrical power resumes.

(***NOTE:** Battery operates memory back-up only. You can program your timer with battery power only; however, the system will not operate the valves while on battery power.)

DEFAULT MODE: Should the battery fail during a power outage, the timer will default to watering every day for 10 minutes per station, starting 8 hours after the power resumes, until reprogrammed.

TIP: Replace the battery once a year at the same time you would replace household smoke detector batteries. When replacing, do not unplug the transformer, or you will lose all programmed settings.

CAUTION: Do not allow the battery to come in contact with the wire terminal strip.

You may now begin to program your new PC-306 timer.

Please turn to page 9 to program your PC-406PS timer.

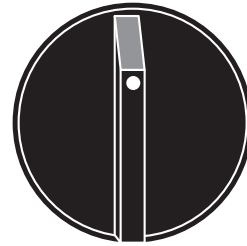
PROGRAMMING THE PC-306

STEP 1: SETTING CURRENT DAY AND TIME

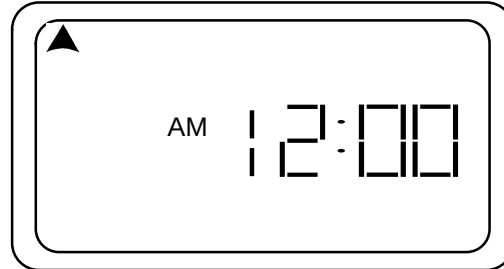
TURN DIAL TO Day/Clock POSITION

1. An indicator symbol will blink under SU. Use the  or  arrow button to move the blinking symbol under the current day. Press the  button to confirm the correct setting.
2. The hour numbers will now be flashing. Use the  or  arrow button to adjust the hour number to the current hour. Press the  button to confirm the correct setting. Be sure AM or PM is properly showing.
3. The minute numbers will now be flashing. Use the  or  arrow button to adjust the minute number to the current minute. Press the  button to confirm that the current settings are correct. (**NOTE:** If further editing of the current time is needed press the  button to repeat the setting process.)
4. Return dial to Auto.

• Day/Clock



SU MO TU WE TH FR SA

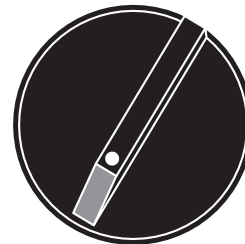


▲ Indicator Symbol

STEP 2: SET THE WATERING DAYS

When shipped from the factory the timer is programmed to water every day.

When setting the days to water, you can select specific days of the week (i.e. MO, TU, etc.), or water on interval of days (i.e. every third day) or water on a PRESET schedule of (MO, WE, FR) or (TU, TH, SA).

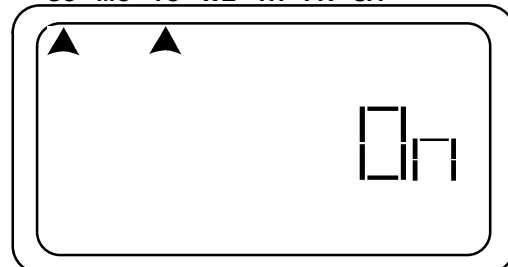


Water Day •

A: WATERING ON SELECTED, SPECIFIC DAYS OF THE WEEK

1. Turn the dial until it points to the Water Day position. If you choose to select your watering days, continue on to A-2. If you choose to water by interval days, proceed to step B-2.
2. The day indicator will be shown below SU and On or Off will be flashing in the display.
3. If the display is correct, press the  button to go to the next day, or press the  or  arrow button to change to the correct setting, then press the  button to go to the next day.
4. At this time, the Monday indicator symbol will be on and the word On or OFF will be flashing in the display. Repeat step A-3 to continue on through the remainder of the week setting the days of the week to be ON (days to water) or OFF (days to not water).

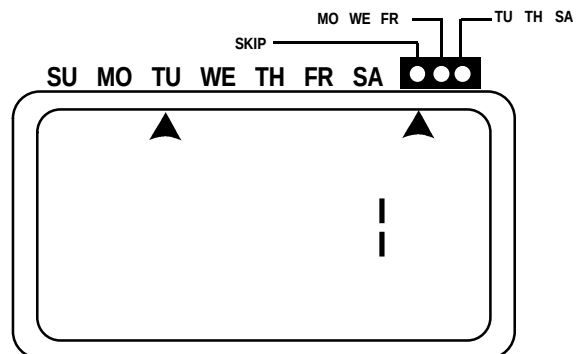
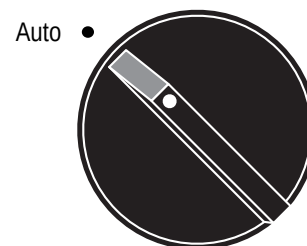
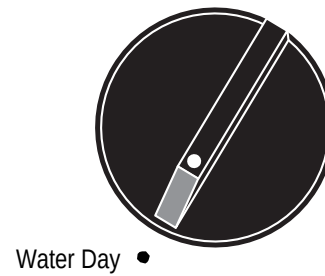
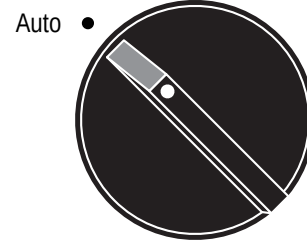
SU MO TU WE TH FR SA



5. Press the  button to confirm the program. The lights and display will be on steady to show how the program is set.
6. Rotate the dial to Auto make sure there is not a symbol showing under the SKIP, MO, WE, FR, or TU, TH, SA position. If there is an indicator symbol under any of the above mentioned positions, press the  arrow button until there is no symbol showing under any of the above mentioned positions. Leave dial in Auto to run or change dial to next setting position.

B: WATERING ON INTERVAL OF DAYS

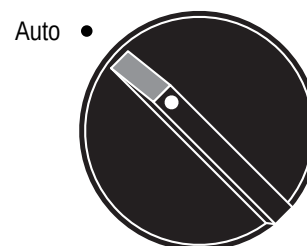
1. Turn the dial until it points to the Water Day position.
2. Press M_A and the day indicator symbol will be shown below SKIP, and DAY INTERVAL will be flashing in the display.
3. Press the  or  arrow button to adjust the number of days you desire in the interval.
4. Press the  button and the Sunday symbol will blink. Use the  or  arrow button to change to the first day you wish the interval to start.
5. Press the  button to confirm the program. The indicator symbol will indicate Tuesday to start and day interval.
6. Rotate the dial to Auto then press the  arrow button until the symbol under SKIP at the top of the display appears.



C: WATERING ON A PRESET MO, WE, FR OR A TU, TH, SA SCHEDULE

1. Turn the dial to the Auto position.
2. Press the  arrow button until the day symbol indicator moves under the (MO WE FR) or the (TU TH SA) to set the water days to the desired fixed day schedule.
3. Leave the dial in the Auto position to run automatically or turn dial to the next setting position.

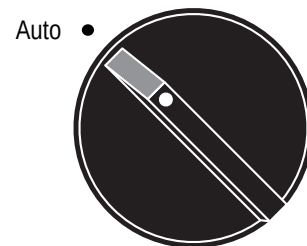
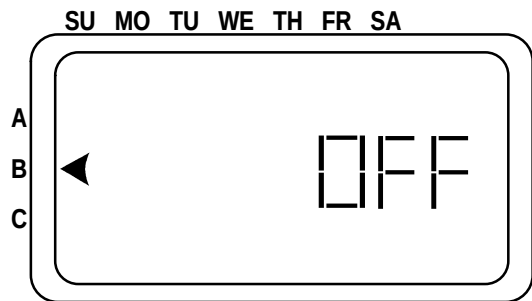
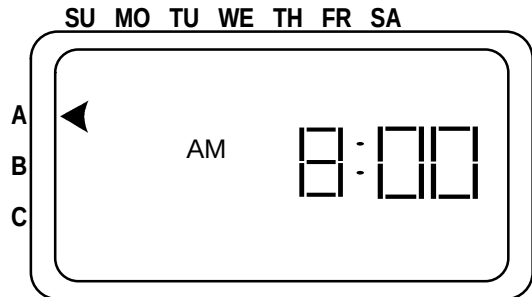
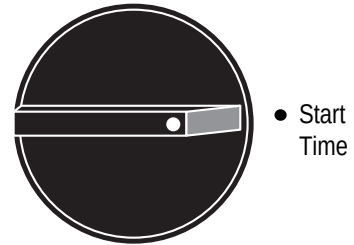
(NOTE: There may be a 3 second delay when moving between these preset programs and the skip program while in Auto mode.)



STEP 3: SET THE WATERING START TIMES

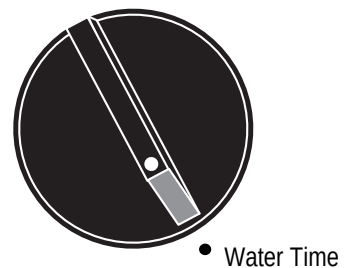
When shipped from the factory the timer has a default program with an 8 a.m. start time once a day, everyday.

1. Turn the dial to the Start Time position.
2. At this point the "A" indicator symbol will be on, and the start time will be displayed (default is 8:00 a.m.). The hour numbers will be blinking.
3. If the time is correct press the  button and go on to setting the next start time or press the  or  button to set start time to the correct hour. (**NOTE:** The clock will only start on the hour.) Once the Start Time is correct, press the  button to set the next Start Time.
4. At this point the "B" indicator symbol will be on, the start time will be displayed, and either the hour number will be blinking or the word OFF will be blinking.
5. If you do not want a second cycle start for the program leave the OFF blinking, and turn the dial to the Auto position or the next programming function. If you do want a second cycle start, then use the  or  arrow button to set the second or "B" Start Time to the hour you desire the cycle to start.
6. If the time is correct press the  button and go on to setting the next start time ("C").
7. At this point the START indicator will be on (e.g. A, B or C), the start time will be on. The hour number will be blinking or the word OFF will be blinking.
8. If you do not want a third cycle start for the program leave the OFF blinking and turn the dial to the Auto position or the next programming function. If you do want a third cycle then use the  or  arrow button to set the third or "C" Start Time to the hour you desire the cycle to start.
(**NOTE:** To return to the 1st Start Time ("A") you will need to press the  key to confirm your program.)
9. Turn the dial to the Auto position or the next programming function.



STEP 4: SET THE WATER TIME FOR EACH ZONE

1. Turn the dial to the Water Time position. Press the  button.
2. At this point the Station 1 indicator will be on and the amount of time on that zone will be flashing. Press the  or  button to adjust the time to the number of minutes Station 1 is desired to run. (**NOTE:** Each zone can be set to run from 0 - 99 minutes.)
3. At this point the next zone indicator symbol will be on and the amount of time for that zone will be flashing. Press the  or  arrow to adjust the time to the correct amount of time.



4. Press the  button to move to the next zone and repeat Step 4 for the remainder of the zones or turn the dial to the Auto position to activate the automatic schedule.
5. Press the  button to move to the next zone. (**NOTE:** To return to Station 1 after the last station, you will need to press the  key to confirm the entry.)

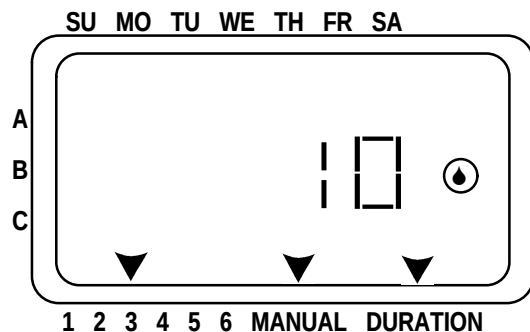
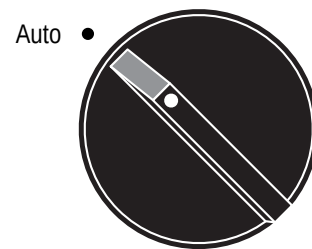
STEP 5: MANUAL START FOR A CYCLE OR A ZONE

1. Turn the dial to the Auto position
2. Press M/A (MANUAL ON/ADVANCE) button. This will cause the Station 1 indicator symbol to turn on. The time the station is scheduled to run will show in the display and the water on ICON (💧) will appear.
3. To advance to the next station press the M/A button. If you do not press this button, the unit will run through each station for the amount of time programmed.
4. To turn on a specific station, press the M/A button repeatedly until the desired station is indicated.
5. To turn the unit OFF press either the M/A button repeatedly until time of day is displayed or turn the dial to the Off position for 15 seconds then return to the Auto position.

STEP 6: TURN UNIT OFF OR SHUT DOWN FOR RAIN

1. Turn dial to the Off position. Nothing will be displayed at this time.

PLEASE NOTE: When dial is in the "Off" position, there will be no display. If a battery is installed "AC" will flash periodically.



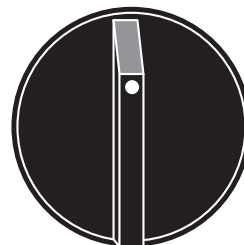
PROGRAMMING THE PC-406 PS

STEP 1: SETTING CURRENT DAY AND TIME

TURN DIAL TO Day/Clock POSITION

1. An indicator symbol will blink under SU. Use the  or  arrow button to move the blinking symbol under the current day. Press the  button to confirm the correct setting.
2. The hour numbers will now be flashing. Use the  or  arrow button to adjust the hour number to the current hour. Press the  button to confirm the correct setting. Be sure AM or PM is properly showing.

• Day/Clock



3. The minute numbers will now be flashing. Use the  or  arrow button to adjust the minute number to the current minute. Press the  button to confirm that the current settings are correct. (**NOTE:** If further editing of the current time is needed press the  button to repeat the setting process.)
4. Return dial to Auto.

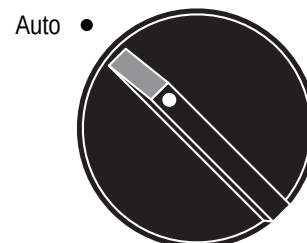
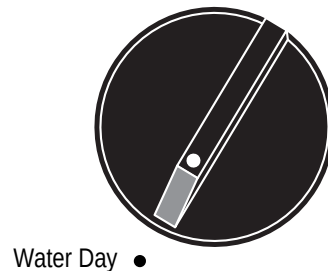
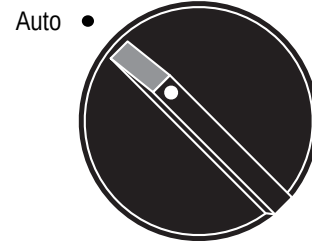
STEP 2: SET THE WATERING DAYS FOR DUAL PROGRAM TIMER

When shipped from the factory the timer is programmed to water every day, only in Program "A".

When setting the days to water you can select specific days of the week (i.e. MO, TU, WE, etc.), or water on interval of days (i.e. every third day) or water on PRE-SET schedule of (MO, WE, FR) or (TU, TH, SA) for either "A" Program or "B" Program or both.

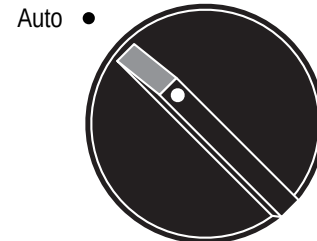
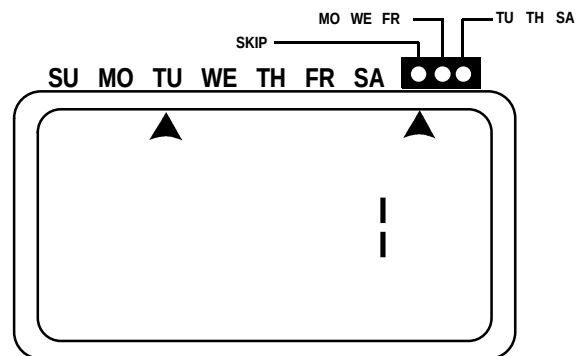
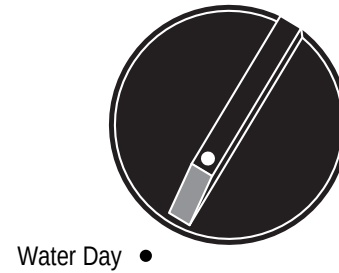
A: WATERING ON SELECTED SPECIFIC DAYS OF THE WEEK FOR THE "A" OR "B" PROGRAM

1. Rotate the dial until it points to the Water Day position. At this point a flashing "A" or "B" will show in the display.
2. Push the Δ/B button until the desired Program "A" or "B" is flashing in the display.
3. Press the  and the day indicator will be shown below SU and On or OFF will be flashing in the display.
4. If the display is correct press the  button to go to the next day, or press the  or  arrow button to change to the correct setting, then press the  button to go to the next day.
5. At this time the day indicator symbol will be under MO and the word ON or OFF will be flashing in the display. Repeat step A-4 to continue on through the remainder of the week, setting the days of the week to be ON (days to water) or OFF (days not to water).
6. Press the  button to confirm the program. The lights and display will be on steady to show how the program is set.
7. If you desire to schedule the "other" Program push the  button to show the "A" or "B" flashing in the display, push the Δ/B button until the other Program is shown and repeat steps 2 through 6. If you do not desire to schedule the "other" Program, please go to step 8.
8. Rotate the dial to Auto to run automatically or change dial to next setting position to continue programming.



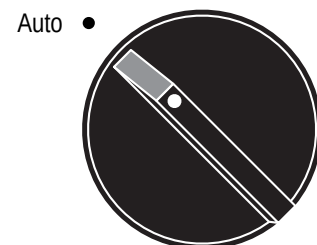
B: WATERING ON INTERVAL OF DAYS FOR THE "A" OR "B" PROGRAM

1. Rotate the dial until it points to the Water Day position. At this point a flashing "A" or "B" will show in the display.
2. Push the ΔI_B until the desired Program "A" or "B" is flashing in the display.
3. Press the $\odot$ and the day indicator symbol will be shown below SU and On or OFF will be flashing in the display.
4. Press the $M I_A$ button to change the display so the day indicator symbol moves under the SKIP at the top of the display and the number of days in the interval will blink.
5. Press the $\odot$ or $\odot$ arrow button to adjust the number of days you desire in the interval, from a one to a six day interval to start.
6. Press the $\odot$ button and the day indicator will blink under SU. Use the $\odot$ or $\odot$ arrow button to change to the first day you wish the interval to start.
7. Press the $\odot$ button to confirm the program. The display will be steady and show the indicator symbol on the first start day, the day interval, the Program "A" or "B".
8. If you desire to schedule the "other" Program, push the ΔI_B button to show the "A" or "B" flashing in the display, push the $\odot$ button until the "other" program is shown and repeat steps 3 through 6; if not, go to step 9.
9. Rotate the dial to Auto then press the $\odot$ arrow button until the indicator symbol is under SKIP at the top of the display.
10. Leave the dial in Auto, to run automatically or rotate dial to next setting position to continue programming.



C. WATERING ON A PRESET (MO WE FR) OR A (TU TH SA) SCHEDULE FOR THE "A" OR "B" PROGRAM

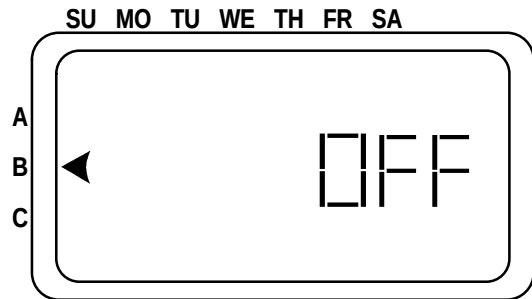
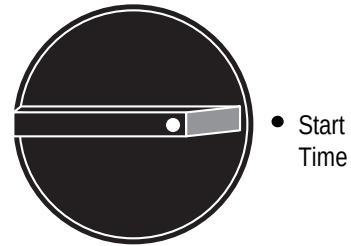
1. Rotate the dial to the Auto position.
2. Push the ΔI_B button to select desired program "A" or "B".
3. Press the $\odot$ arrow button until the day symbol indicator moves under the (MO WE FR) or the (TU TH SA) to set the water days to the desired fixed day schedule.
4. Press the $\odot$ button and hold it to confirm the program.
5. Leave the dial in the AUTO position to run automatically or rotate dial to the next setting position to continue programming.



STEP 3: SET THE WATERING START TIMES

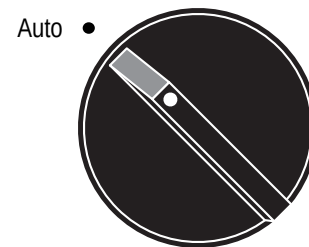
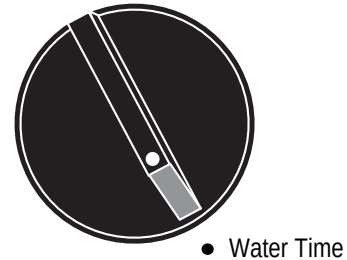
When shipped from the factory the timer has a default program with an 8 a.m. start time once a day only in Program "A".

1. Rotate the dial until it points to the Start Time position. At this point a flashing "A" or "B" will show in the display.
2. Push the Δ/I_B button to select the desired Program "A" or "B".
3. Push the $\odot$ button. At this point, the "A" start time indicator symbol will be displayed on the far left of the display and the hour or OFF will be blinking in the display.
4. If the time is correct, press the $\odot$ button and go on to setting the next start time or press the $\odot$ or $\odot$ arrow button to set the start time to the correct hour. (**NOTE:** The clock will only start on the hour.) Once the Start Time is correct, press the $\odot$ button to set the next Start Time, if watering more than once a day. When finished, press $\odot$ to confirm the program.



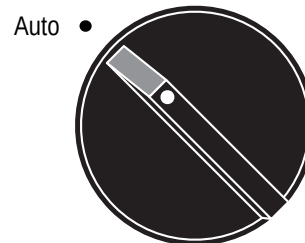
STEP 4: THE WATER TIME FOR EACH ZONE IN "A" OR "B" PROGRAM

1. Rotate the dial to the Water Time position. At this point a flashing "A" or "B" will show in the display.
2. Push the Δ/I_B button to select the desired program, "A" or "B."
3. Push the $\odot$ button. At this point the Station 1 indicator symbol will be on and the amount of time on that zone will be flashing. Press the $\odot$ or $\odot$ button to adjust the time to the number of minutes Station 1 is desired to run. (**NOTE:** Each zone can be set to run from 0 - 99 minutes.)
4. Press the $\odot$ button to move to the next zone and repeat Step 3 for the remainder of the zones. If you desire to schedule the "other" Program push the $\odot$ button to show the "A" or "B" flashing in the display, push the Δ/I_B button until the other Program is shown and repeat step 3. If you do not desire to schedule the "other" Program please go to step 5.
5. Rotate the dial to the Auto position to activate the automatic schedule.



STEP 5: MANUAL START FOR CYCLES OR ZONES FOR "A" OR "B" PROGRAM

1. Turn the dial to the Auto position
2. Press the $\overset{A}{I}_B$ button to select the desired program.
3. Press $\overset{M}{I}_A$ (MANUAL ON/ADVANCE: $\overset{M}{I}_A$) button. This will cause the Station 1 indicator symbol to turn on. The time the station is scheduled to run will show in the display and the water on ICON (●) will appear.
4. To advance to the next station press the $\overset{M}{I}_A$ button. If you do not press this button, the unit will run through each station for the amount of time programmed.
5. To turn on a specific station, press the $\overset{M}{I}_A$ button repeatedly until the desired station is indicated.
6. To turn the unit **OFF** press either the $\overset{M}{I}_A$ button repeatedly until time of day is displayed or turn the dial to the Off position for 15 seconds then return to the Auto position.



FOR PC-406PS SERIES ONLY

Connect Master Valve/Pump Connection (Optional)

The PC-406PS Sprinkler Series Timer allows a Master Valve/Pump Start to operate whenever a valve is operating.

In many parts of the country pumps are used to draw water from other sources such as wells. If you are activating a pump from the timer, you will need a Pump Control Relay (Rain Bird PCR-1).

Attach the control wire from the Master Valve or Pump Control Relay to the Master Valve Terminal screw marked "MV." Connect the common wire from the Master Valve or Pump Control Relay to the Common Terminal screw marked "COM."

CAUTION: Be sure the total draw of the Master Valve or Pump Control Relay plus the draw of the zone valve does not exceed 0.70A at 24 VAC, 60 Hz.

TIP: To avoid possible pump damage, "jumper" wire each unused terminal screw to a terminal screw in use.

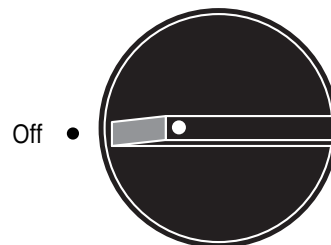
See figure on page 4.

Need Help? Call toll-free, 1 (800) 742-9922 (U.S.A., Canada & Mexico)

MAINTAINING YOUR SYSTEM

1. Winterize System

For winter months, this mode allows you to preserve your programmed schedules while the timer is not in operation: turn the dial to Off. Before shutting it down for the winter, be sure to drain all water from pipes to prevent freezing and damage to system. When restarting timer for the year, turn dial back to Auto.



WARNING: In areas prone to lightning storms, it is recommended to disconnect wires from the timer's terminal screw strip and to unplug the transformer from the outlet to protect the timer from lightning caused power surges.

2. Battery Back-UP

We recommend that you replace your battery every year at the same time you change your fire alarm battery. If frequent power outages occur, you may need to replace the battery more frequently.

**Need Help? Call toll-free: 1 (800) 742-9922
(U.S.A., Canada & Mexico)**

TROUBLESHOOTING

PROBLEM

CHECK FOR

Display is Blank

Burned out fuse (replace with 1/2 amp fuse, not included with timer). Transformer not plugged in. Wall socket not supplying power, or Timer in OFF position.

"Frozen Display"

Unplug, pull out battery and fuse, and let sit for 30 minutes.

Automatic and Manual Cycles do not turn water on.

Water source not supplying water. Wires not properly connected. Wires loose or severed. Dial not set to Auto. All stations turned OFF (to 0 minutes in water duration).

Valve does not shut off after watering at scheduled time.

Check valve.
Electronic board is "locked on".

Fuse blows out frequently and display goes blank.

Short in wiring between valve and timer.
Shorted solenoid on 1 or more valves.

Single station does not shut off

Valve is stuck.

Fuse blows as soon as timer is plugged in. Bad transformer, or electrical short in timer.

OPTIMA™

For troubleshooting help, contact:

OPTIMA

Customer Support Center

6640 S. Bonney Ave., Tucson, AZ 85706

1 (800) 742-9922

(U.S.A., Canada & Mexico)