



WT IRRIGATION CONTROLLER



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Introduction



WT is a compact, easy-to-use sprinkler timer that offers the following features:

- Three programs, with independent watering days
- Up to four watering start times per program
- Option to set any day of the week as a watering day
- Seasonal adjust feature across all programs
- Battery backup to retain time, date, and programming during power outages.

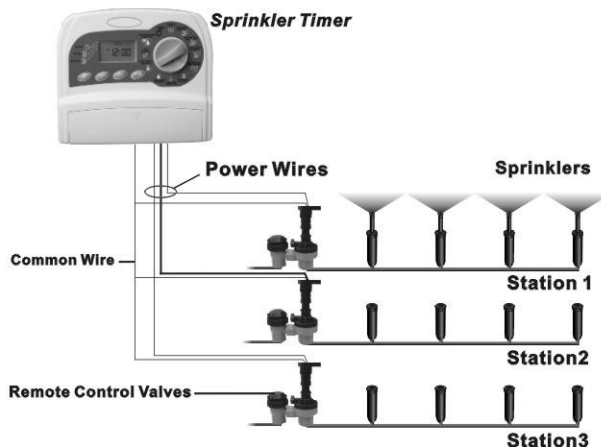
Sprinkler Timer Stations

An electronic timer that controls when your sprinkler system turns on, and how long the sprinkler run. The WT can control 4, 6 or 9 watering stations (depending on the model).

A station is a series of sprinkler, or other irrigation devices, connected to a common remote control valve.

When the valve receives a signal from the timer, the valve opens and turns on the sprinkler connected to it.

This manual shows a diagram of a station layout. Station 1 is currently watering. When station 1 finishes, the timer shuts off and turn on station 2. When station 2 finishes watering, station 3 begins, and so on.



Sprinkler Timer Basics

Programming Under Battery Power

If you wish, you can program the timer under battery power. This feature can be useful if the timer is installed in an area that is not readily accessible. This feature also allows you to enter program information before installing the timer.

To program the ISM sprinkler timer under battery power, you must first install in battery.

NOTE: To save battery power, the WT goes into "sleep" mode after a period of inactivity on the programming dial or buttons. Press any button once to reactivate the timer.

Installing the Battery

The battery back-up feature retains time, date, and programming information during power outages. The battery also lets you program the timer under battery power before it is connected to an AC power supply.

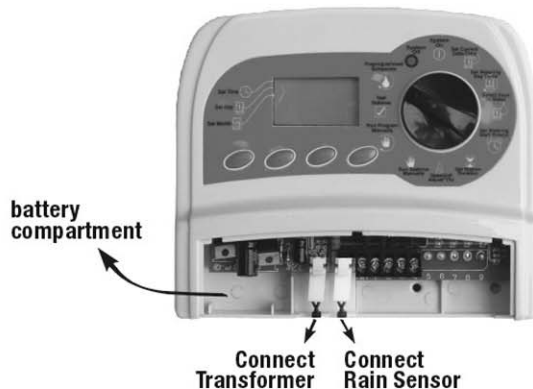
For best results, use a long-life, 9-Volt alkaline battery. A new battery will normally provide power for up to one year. Replace the battery yearly to ensure an uninterrupted power supply.

NOTE: Make sure the timer is connected to an AC power supply when replacing the battery, or you will lose all programming information including date and time.

To install the battery:

1. Remove the timer's lower access cover to expose the battery compartment.

2. Snap the two-wire battery clip onto the terminals of the new battery. If you are replacing an old battery, dispose of the old battery properly.
3. Insert the new battery snugly into the battery compartment.
4. Replace the lower access cover.

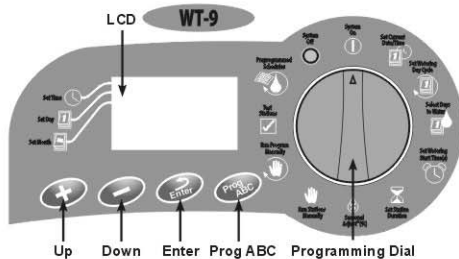


NOTE: If no battery is installed, short circuit detection may not function as desired. Please ensure the battery is installed prior to the operation.

Controls and Indicators

This illustration shows the programming controls on the face of the WT sprinkler timer. These controls include:

- 1. Liquid Crystal Display (LCD)** - During normal operation, displays the time of day and the programs that will run today. During programming, shows the results of your commands. During watering, shows the station that is running, the minutes remaining in the station's run time, and whether another program is waiting to water.
- 2. Up and Down (+) or (-) buttons** - Set start times and days, and make programming changes.
- 3. Enter button** - Enters programming commands, and starts manual operation.
- 4. Prog ABC button** - Selects watering program A, B or C.
- 5. Programming Dial** - Turns the timer off or on and selects other programming functions.



Programming the Sprinkler Timer

Erase Any Existing Programming

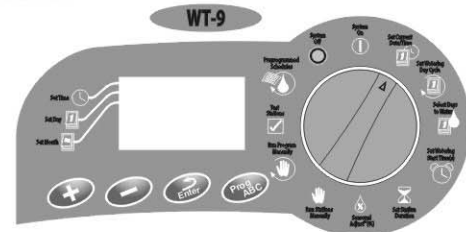
Use the following procedure any time you want to erase all programming in the timer's memory and "start from scratch".

1. Unplug the transformer from the wall.
2. Disconnect the battery clip from the battery.
3. Wait 10 seconds.
4. Reconnect the battery clip to the battery.
5. Plug the transformer back into the wall.

"AM 12:00" will appear in the display. All previous programming is now erased, and you may turn the Programming Dial to the Set Current DATE/TIME position and begin setting the Year, Month, Day, and Time.

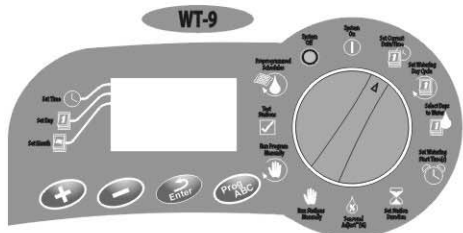
Set Year

1. Turn the Programming Dial to Set Current DATE/TIME position.
2. Press the (+) or (-) buttons to set the current year.
3. Press Enter.



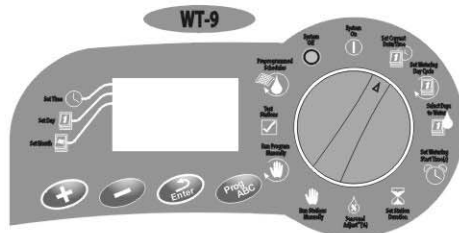
Set Month and Day

1. After setting the correct year, leave the Programming Dial on **Set Current DATE/TIME**.
2. The month and day appear as "01 01," with the first "01" flashing (representing the month). A cursor will appear under the Set Month icon.
3. Press the **(+)** or **(-)** buttons to set the current month (1 through 12).
4. Press **Enter**.
5. The second "01" begins flashing (representing the day of the month). A cursor will appear under the Set Day icon.
6. Press the **(+)** or **(-)** buttons to set the current day (1 through 31).
7. Press **Enter**.



Set Time

1. After setting the correct month and date, leave the Programming Dial on **Set Current DATE/TIME**.
2. The time of day appears in the display. The display will also show AM or PM (for example, 12:01 AM). A cursor will appear under the Set Times icon.
3. Press the **(+)** or **(-)** buttons to set the current hour (1 through 12 AM or PM).
4. Press **Enter**.
5. The minute digits begin flashing.
6. Press the **(+)** or **(-)** buttons to set the current minute (1 through 59).
7. Press Enter. Turn the Programming Dial back to the **SYSTEM ON** position.



Pre-Programmed Schedules

Use this procedure if you want to select a pre-programmed schedule. If you want to set your own custom watering schedule, go directly to Select Program (A, B or C) on next page.

For your convenience, the WT has **THREE PRE-PROGRAMMED** watering schedules you can select for any program (A, B or C). These schedules are already programmed into the timer, and are shown below.

- **Pre-Programmed 1 (5 Pr E1)** - Waters all station for five minutes three times every day at 6 a.m., 10 a.m., and 2 p.m.
- **Pre-Programmed 2 (10 Pr E2)** - Waters all station for ten minutes every other day at 6 a.m.
- **Pre-Programmed 3 (10 Pr E3)** - Waters all station for ten minutes every third day at 6 a.m.

1. Turn the Programming Dial to **PRE-PROGRAMMED SCHEDULES**.
2. The first pre-programmed schedule (5 Pr E1) appears in the display.
3. To select one of the other pre-programmed schedules, press the **(+)** or **(-)** buttons until the desired schedule appears in the display.
4. Press the **Prog ABC** button until the desired program letter (A,B or C) appears in the display with the pre-programmed schedule.
5. Then press **Enter**.The program letter flashes to confirm your selection.

After selecting a pre-programmed schedule,you can modify the program settings (watering day, watering start time, etc.) by using the programming steps given on the following pages.

6. Turn the Programming Dial back to the **SYSTEM ON** position.

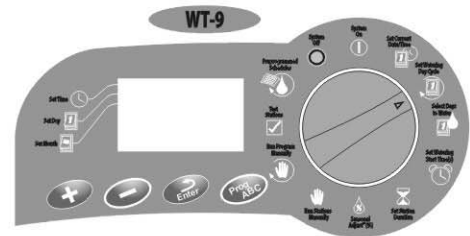
Select Program (A,B or C)

Program A is already programmed for your convenience. You can also completely customize your own watering schedules by following the steps on next page.

Programs B and C are not pre-programmed.

1. Turn the Programming Dial to **SET WATERING DAY CYCLE**.
2. The letter of the currently selected program (A,B or C) appears in the display.
3. Press the **Prog ABC** button until the desired program (A,B or C) appears in the display.Remember, if you plan to use only one program, use program A.

NOTE: It is easier to select one program (A,B or C) and program it completely before moving on to the next program. Switching from program to program can be confusing.



Set Watering Day Cycle

Use the procedure below if you want to set your own custom watering schedule. Make sure the Programming Dial is on **SET WATERING DAY CYCLE**.

NOTE: If you have selected a pre-programmed schedule, skip this page. Go directly to "Set Program Watering Start Time(s)" on next page.

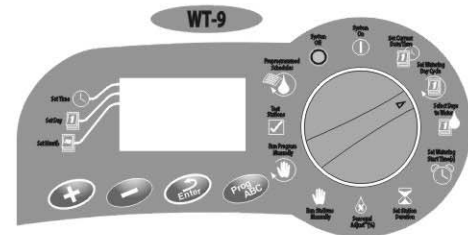
1. Press the **(+)** or **(-)** buttons until the watering day cycle you want to use appears in the display along with the selected program (A, B or C). Available watering day cycles include:

- **7-day** (Custom) - Waters on a weekly cycle; any day of the week can be a watering day.
- **Ev** - Waters only on even-numbered days.
- **Od** - Waters only on odd-numbered days.
- **Od31** - Waters only on odd-numbered days, except the 31st of any month and February 29th. (This watering day cycle complies with special ordinances on some water-restricted areas).
- **2-, 3-, 4-, 5 or 6-day** - Waters only on the first day of a repeating 2-, 3-, or 5-day cycle.

2. If you select a 7-day, or a 2-, 3-, 4-, 5 or 6-day watering cycle, go to "Select Days to Water" on page 22.

NOTE: If you select Ev, Od, Od31 or 1 day as your watering day cycle, you do not have to select the watering days, Go

directly to "Set Program Watering Start Time(s)" on next page.

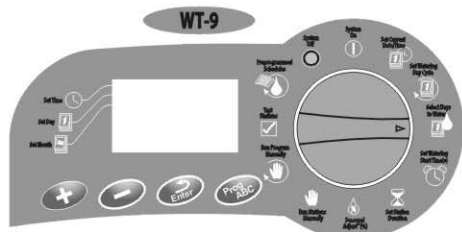


Select Days to Water

Use the procedure below to select the watering days for a 7-day custom watering cycle.

7-Day Watering Cycle

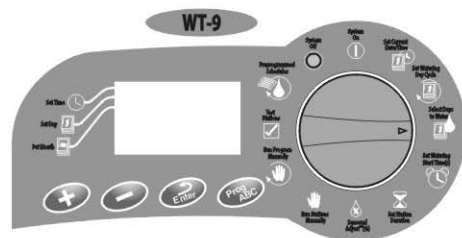
1. Turn the Programming Dial to **SELECT DAYS TO WATER**.
2. If you selected a 7-day watering cycle, the seven weekdays appear as a row of numbers and the number "1" in the day cycle flashes (day 1 is Monday, day 2 is Tuesday, etc).
3. The display shows the program's letter (A,B or C).
4. A number appears, indicating the "today" number (the day on which you are programming the timer). The day's abbreviation also appears in the display.
5. Press the **(+)** or **(-)** buttons to turn a particular watering day ON or OFF. An ON day has a box around it. An OFF day has no box around it.
6. Press **Enter** to move to the next day.
7. Repeat steps 5 through 7 for each day.
8. Proceed to set to **SET WATERING START TIME(S)**.



2-,3-,4-,5 or 6-Day Watering Cycle

Use the procedure below if you selected a 2-,3-,4-,5 or 6-day watering cycle.

1. Turn the Programming Dial to **SELECT DAYS TO WATER**.
2. If you selected a 2-,3-,4-,5 or 6-day watering cycle, the row of days in that cycle appears in the display with a box around day 1.
NOTE: The only watering day in a 2-,3-,4-,5 or 6-day cycle is day 1.
3. The display shows the program's letter (A,B or C).
4. A flashing number appears in the display, indicating where "today" is in the watering cycle.
5. Press the **(+)** or **(-)** buttons to move today's position in the watering cycle.

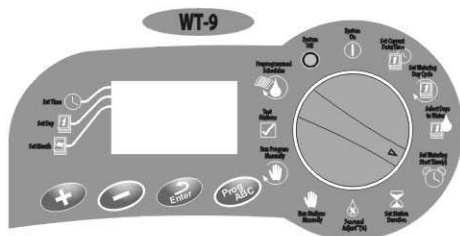


Set Program Watering Start Time(s)

The watering start time for your program is the time that the first programmed station begins to run. Up to 4 watering start times may be entered per program. Each subsequent station will then run in sequence. There is a 2-second delay between the activation of stations.

1. Turn the Programming Dial to **SET WATERING START TIME**.
2. The program letter (A, B or C), the number "1" (indicating the earliest start time), and a row of four dashes "--:--" appear in the display.
3. Press the **(+)** or **(-)** buttons to set the program start time. If you want all the stations on the program to run only once each watering day, enter only one start time for the program.
4. To enter another watering start time, press **Enter**. The next watering start time number (2-, 3 or 4) and a row of four dashes appear in the display. Repeat steps 3 and 4 to set up to four separate watering start times for each program, if needed.

NOTE: If you selected one of the pre-programmed schedules, you will see the default watering start time(s) for that schedule.

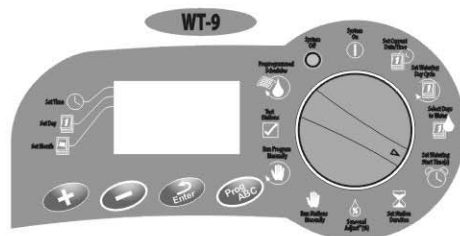


Delete Program Watering Start Time(s)

1. If you want to delete an unwanted watering start time from a program, turn the Programming Dial to **SET WATERING START TIME(S)**.
2. Press Enter to select the start time number (1,2,3 or 4) you want to delete.

NOTE: Watering start times appear in chronological order. The earliest watering start time is number 1, the next later watering start time is number 2, and so on. If you delete a watering start time, all later start times are automatically advanced by one watering start time number. This re-numbering only occurs after you move the Programming Dial from the **SET WATERING START TIME(S)** position to another function.

3. The watering start time number to be deleted appears in the display.
4. Press the **(+)** or **(-)** buttons until the blank position (four dashes, "--:--") appears in the display.
5. Turn the Programming Dial back to the **SYSTEM ON** position. The unwanted watering start time is now deleted.



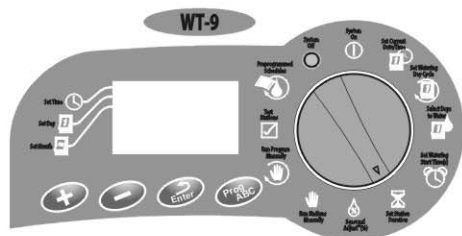
Set Station Duration

1. Turn the Programming Dial to **SET STATION DURATION**.
2. The program letter (A, B or C), the number "1" (indicating the station number), and "0" appear in the display.
3. Press the **(+)** or **(-)** buttons to set the amount of time you want it to run for station number 1. You can set a station to run from 1 minutes up to 240 minutes (four hours), in one-minute increments. All durations display in minutes (for example, a two hour duration will appear as 120 minutes).

NOTE: If you do not want to include a particular station in the selected program, set that station's duration to zero "0".

4. Press **Enter** to display additional stations, Repeat steps 3 and 4 to set a duration for each station.

You have now completed all programming steps for one program. If you are finished programming, turn the Programming Dial to the **SYSTEM ON** position to run all programs automatically, If you want to enter settings for another program, repeat the programming instructions, beginning with "Select Program (A, B or C)" on page 19.



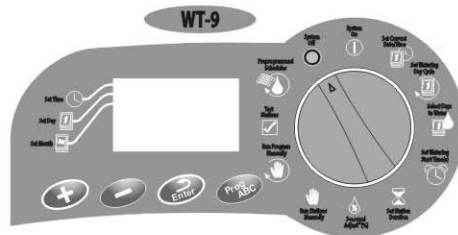
Operating the Sprinkler Timer

After programming the timer, you will normally set it to **SYSTEM ON** mode to operate all programs automatically. You can also manually run one or more programs, or manually run a single station or several stations.

In addition, you can adjust for changes in the weather or time of year with the Seasonal Adjust feature to increase or decrease the run time of all programs by a selected percentage (in 10% increments). You may also wish to run a test program to make sure all sprinklers in the system operate properly.

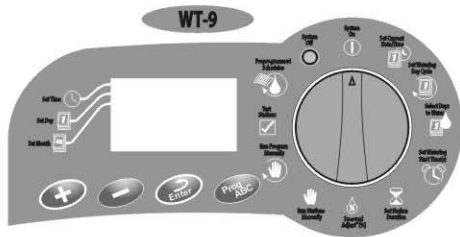
System Off

1. To turn the timer off and suspend all watering, turn the Programming Dial to **SYSTEM OFF**.
2. In the SYSTEM OFF position, the LCD displays OFF. The timer remembers the current time and date and retains all programming, but no watering occurs. You may wish to turn the timer OFF during a rainy period, or for any day(s) when you do not want watering programs to run as scheduled.



System On

1. To return the timer to automatic operation, turn the Programming Dial to **SYSTEM ON**.
2. When the timer IS NOT watering, it displays:
 - Any program (A, B or C, or none) scheduled to water today.
 - The current time.
 - %A %B %C, if there is a Seasonal Adjust setting other than 100%.
3. When the timer IS watering, it displays:
 - Any programs (A,B or C) scheduled to run today.
 - The station number currently running.
 - The duration time remaining for that station.
 - %A %B %C, if there is a Seasonal Adjust setting other than 100%.
4. If a problem or short is detected in any of the stations, the display toggles every 3 seconds and shows an error message "Err#", # being the station where the problem was detected. For example, if the master valve has a problem, it shows "Err M". For station 3 - "Err 3".The station is automatically ignored until the cause of error is corrected. Refer to the Troubleshooting section of this manual for more information.



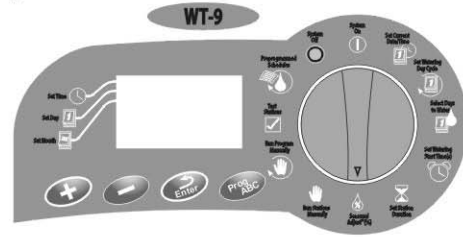
Seasonal Adjust (SA)

You can set the Seasonal Adjust percentage from 10% to 200% in increments of 10%. Changing the percentage affects all stations on all programs (A, B and C).

Seasonal Adjust percentages are calculated on the normal programmed duration time for each station. For example, if a station is programmed to run for 10 minutes, and you set the (SA) to 80%, the station will only run for 8 minutes (80% of 10 minutes). If you set the (SA) to 120%, that same station will run for 12 minutes (120% of 10 minutes).

NOTES: (SA) will not split a minute. One whole minute is the lowest duration time allowed.
All duration times for every programmed station will be increased or decreased when you use the (SA) feature.

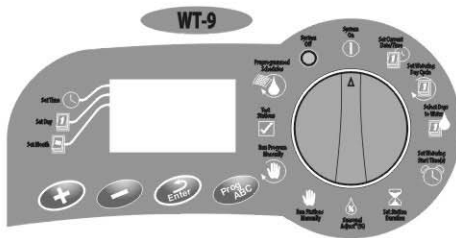
1. Turn the Programming Dial to Seasonal Adjust.
2. The current Seasonal Adjust setting number appears in the display.



3. Press **(+)** button to increase the Seasonal Adjust percentage, or press the **(-)** button to decrease the SA percentage.

Seasonal Adjust (SA)

- When the Seasonal Adjust percentage is set to any figure other than 100%, all programs (A, B and C) display a percent sign (%) in front of the program letter. The percent sign appears on all programs (A, B and C) even if they are not selected.
- After setting the desired SA percentage, turn the Programming Dial back to **SYSTEM ON**. All station run times will be increased or decreased by the selected Seasonal Adjust (SA) percentage.



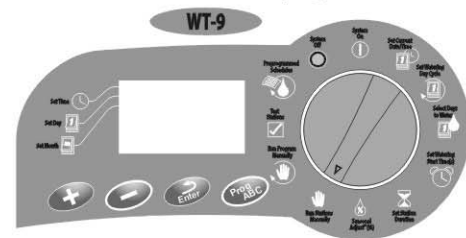
Manually Run Stations and Programs

You can run individual stations or an entire program if you think a particular area needs additional watering.

Manually Run a Station(s)

- Turn the Programming Dial to **RUN STATIONS MANUALLY**.
- The number "1" followed by "0" appears in the display. This means that station number 1 is set for zero manual run time.
- If you want to manually run a station other than number 1, press **Enter** until the desired station number appears in the display.
- If you want to manually run the displayed station, press the (+) or (-) buttons to set the station's manual run time (from 1 minute to 240 minutes).
- Press **Enter** to begin watering.
- After setting the manual run time for all stations desired, turn the Programming Dial back to **SYSTEM ON**. The number of the first manually operated station appears in the display, along with its remaining run time. You can press **Enter** to manually advance to the next station.

When manual operation finishes, the timer returns to **SYSTEM ON** mode and awaits the next scheduled program start time.



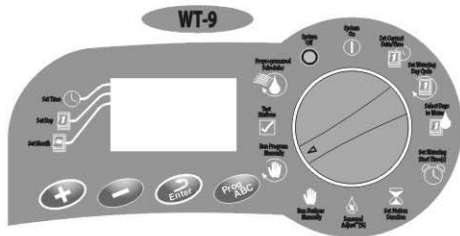
Manually Run a Program

1. Turn the Programming Dial to **RUN PROGRAM MANUALLY (RPM)**.
2. The current program "A, B or C" appears in the display.
3. To choose another program, press the **Prog ABC** button until the desired program letter appears in the display.
4. Press **Enter** to start the selected program.

NOTES: You can "stack" programs (A, B and C) to operate manually by pressing **Enter** after selecting each program. Programs will run in order in which they are entered.

5. Turn the Programming Dial back to **SYSTEM ON**. The station currently running and the time remaining is shown in the display.

NOTE: "Seasonal Adjust" settings apply to manually operated programs.



After the last manual program runs, the timer returns to **SYSTEM ON** mode and awaits the next scheduled program start time.

NOTE: Manually operating a station does not affect the station's run time (s) in the automatic programs (A, B or C).

Run a Test Program

The WT's built-in test program will run each station that has a non-zero watering time. When you run the test program, the timer operates each station in numerical sequence, from lowest to highest. You can use this feature to check the operation of all sprinklers in the system.

1. To test all timer stations, turn the Programming Dial to **TEST STATIONS**.

NOTE: If you want to test less than the maximum number of stations, follow the procedure in "Manually Run a Station(s)" on page 30.

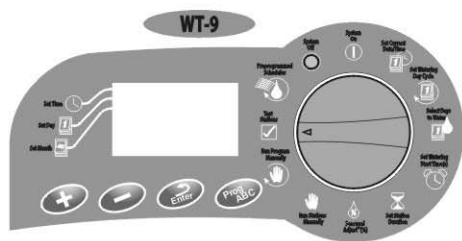
2. The number "2" appears in the display, representing a two-minute test run per station. Adjust the test time per station using the **(+)** or **(-)** buttons (from 1 minute to 10 minutes).
3. Press **Enter** to start the all-stations test.
4. Then turn the Programming Dial back to the **SYSTEM ON** position.

During the test, the number of each operating station appears in the display, along with the station's remaining run time. Any station set for a zero run time in the automatic programs (A, B or C) will be skipped in the all-stations test.

NOTE: At any time during the all-stations test, you can press **Enter** to manually advance to the next station.

When the all-stations test is complete, the timer returns to **SYSTEM ON** mode and awaits the next scheduled program start time.

Run a Test Program



Installing the Sprinkler Timer

Although this manual provides directions for connecting the wiring to the timer, local electrical codes may vary in their requirements for proper and safe installation.

NOTES: This timer must be installed in full compliance with local electrical codes.

The ISM sprinkler timer must be installed indoors only.

If you must install it outdoors, use a water-resistant cabinet, such as the Rain Bird TC-2 Timer Cabinet. The TC-2 is a heavy-duty, weather resistant plastic case that lets you convert any indoor timer to outdoor use.

Choose a Proper Location

Choose a secure location where you can easily reach the timer. We recommend mounting the timer at eye level in a utility room (garage, laundry room, etc.)

1. The mounting location must be within 5 feet (1, 5m) of an electrical wall outlet.

NOTE: To minimize electrical interference, select a location at least 15 feet (4, 6m) away from high-draw motors such as air conditioners, refrigerators, or pool pumps.

2. When selecting a location, choose a flat, stable vertical surface on which to mount the timer. Make sure to allow enough clearance for electrical conduit and connections at the bottom of the timer case.

Mount the Sprinkler Timer

1. Hold the template provided against the wall in the desired mounting location. Use a pencil to mark the location of the three holes for the mounting fasteners, as shown on the template.
2. Use a nail to tap a small pilot hole on each pencil mark for the mounting fasteners. Using the mounting fasteners provided, drive the top two fasteners into the wall.
3. Use the keyhole-shaped slots on the back of the timer to hang the timer on the two mounting fasteners. Mark sure the shafts of the fasteners are well up into the narrow part of the keyhole slot.
4. Remove the lower access cover and drive the third mounting fastener through the hole in the timer's lower access panel.

Connect Main Power Wires

The WT sprinkler timer has an external transformer that reduces standard supply voltage to 24 VAC to operate the remote valves connected to the timer.

CAUTION: To avoid electrical shock, DO NOT plug in the transformer until you have connected it to the timer.

To connect the transformer cable to the terminal strip in the timer cabinet:

1. Make sure the transformer is NOT plugged in.
2. Plug the snap-on connector on the transformer cable into the "24VAC" connection point on the timer terminal strip.
3. Plug the transformer into any standard, three-prong grounded wall plug.

Connect Field Wires to Remote Control Valves

The wires coming back to the timer from the electric valves in the field can be routed into the timer through the hole in the bottom of the cabinet.

Fig. A shows the various wire runs and connections between the timer and the other devices. Each valve should have its own, separate control wire. Use only wire that is code-approved for underground, low-voltage purposes.

1. Connect one end of the control wire to a numbered station terminal on the timer's terminal strip.
2. Connect the other end of the control wire to one of the wire leads on the valve solenoid. The wire connectors at the valves must be waterproof. Connect the valve common wire to the "COM" terminal on the terminal strip. Route the common wire out to the furthest valve, and connect the valve common wire to the remaining wire lead on each valve.
3. If your system includes a master valve on its main line supply. Or a 24-volt pump start relay (for activating a pump during irrigation), connect a wire from the device to the MV terminal on the timer's terminal strip. (The timer does not provide the main power for a pump.) Connect the other wire lead on the device to the valve common wire.
4. That completes the mounting and wiring procedures for your WT sprinkler timer. Replace the lower access cover on the timer, and you are ready to begin programming. Refer to "Programming the Sprinkler Timer".
5. Connect the rain sensor. The rain sensor can keep the irrigation system or continuing after rainfall quantities of 1/8", 1/4", 1/2", 3/4", or 1". To adjust it to the desired quantity of rainfall. Rotate

Fig.

the cap on the switch housing so that the pins are located in the proper slots. Do not forcibly twist the cap as this might break the pins. The time that it takes the rain sensor to reset for normal sprinkler operation after the rain has stopped is determined by weather conditions (wind, sunlight, humidity, etc.) These conditions will determine how fast the hygroscopic discs dry out, and since the landscape is also experiencing the same conditions, their respective drying rates will roughly parallel each other.

Fig. 1

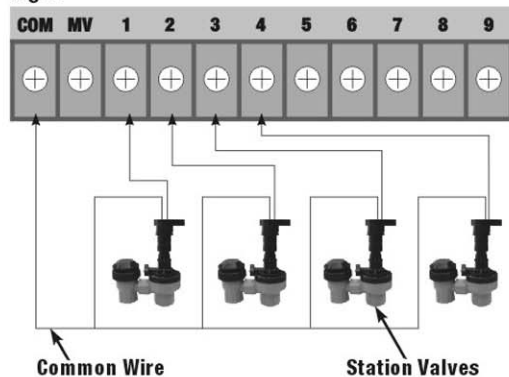
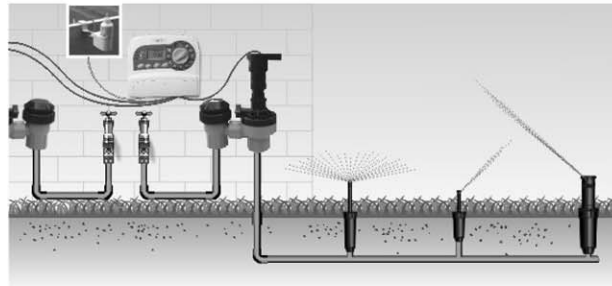


Fig. 2



Troubleshooting

SYMPTOM	POSSIBLE CAUSE	CORRECTION
LCD display is blank.	1.Power is off to the timer.	Re-establish power to the timer. If the current time is not shown, or your program is no longer in memory, reprogram the timer.
	2. If under battery power, the timer may be in "sleep" mode.	Press any button to reactivate the timer.
LCD display is partially or completely blank.	3. An electrical surge or lightning strike may have affected the timer's electronics.	Turn off the timer and disconnect the 9-Volt battery. Let the timer timer sit for two or three minutes. Then reconnect the battery and restore power to the timer. Reset the time and date as described. If the electrical surge did no permanent damage, the timer will accept programming commands and function normally. If the timer does not operate properly, contact
LCD display shows a station operating, but no watering occurs.	4. The valve may have a defective diaphragm, a clogged pilot port, or other malfunction.	Check and repair the valve.
Program does not begin watering as scheduled.	5. Programming Dial is set to the SYSTEM OFF position.	Set the Programming Dial to SYSTEM ON .
	6.Start time has not been properly entered for the program.	Turn the dial to SET WATERING START TIME and check the start times entered for the program. If the start time is missing or incorrect, enter it as described.
	7.Today may not be set as a watering day for the program.	If today is a watering day for a program, the program letter appears in the display. Turn the dial to SELECT DAYS TO WATER to check the watering days for the program if necessary, set watering days as described .
	8.Water supply may be shut off.	Make sure water supply line has pressure.
A particular station does not come on as scheduled.	9.No run time has been set for the station.	Turn the Programming Dial to SET STATION DURATION to check the run times set for the station. To add a run time.
	10. A short circuit in the solenoid or valve wiring has disabled the station.	Identify and repair the fault in the electrical circuit.
	11. A start time has not been entered for the station's assigned program.	Turn the dial to SET WATERING START TIME(S) and check the start times entered for the program. If the station's start time is missing, enter it as described.
Watering starts when it should not.	12.One of the preprogrammed schedules may be selected.	Clear all start times from unwanted program.
	13.An unwanted program start time may have been entered.	Turn the dial to SET WATERING START TIME and check to see if any programs have an unwanted start time. See the instructions beginning for setting and deleting start times.
Watering does not stop as scheduled.	14.Programs may have accidentally been set to overlap.	Check to see if another program's start time began during the previous program's run cycle. The overlapped program would immediately follow the earlier one. Reprogram if necessary.
	15.A valve is stuck in the open position.	Turn the Programming Dial to SYSTEM OFF and wait 10-20 seconds. If the irrigation does not stop, shut off the water supply manually and repair the valve.
LCD display shows "Err."	16.The automatic circuit breaker has detected an electrical problem.	The "Err" in the display indicates a short circuit overload on a particular station. The station's number should also be displayed. For example, "Err 2" means the problem is in the circuit for Station 2. Usually, the short circuit is in the solenoid on the electric valve, but shorts can also occur in the wire connectors at the valve. Occasionally, nicked or "skinned" field wires can cause a short. A large pump start relay can also product a momentary overload that may be detected by the controller. Locate and repair the cause of the short circuit. Press enter with dial in SYSTEM ON position when "Err" is displayed.
LCD display shows "Err" for a few seconds and then shows the station operating for a few seconds.	17.Same as Cause #16.	See correction for Cause #16.