Single, Four & Six Station Battery Operated Controllers

710-XXX
740-000
746-000
710-ASV-075
710-PRF-ASV-XXX

INSTRUCTION MANUAL

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CONTROLLER MODELS

710-011
with Manual Valve Actuator

710-XXX
with In-line Valve

710-ASV-XXX
with Anti-Siphon Valve

710-PRF-ASV-XXX
with Anti-Siphon Valve
and Pressure Regulator

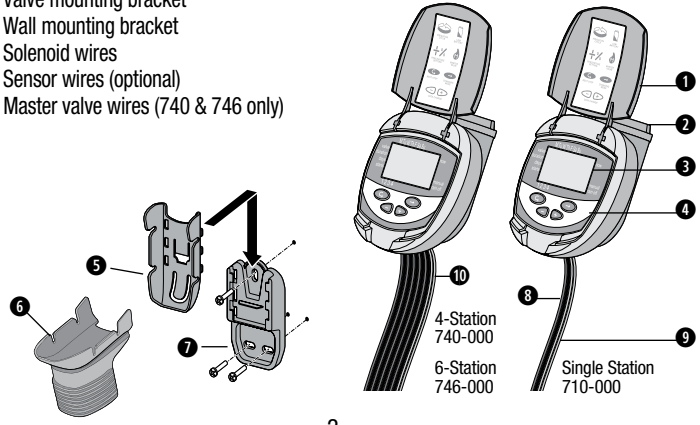
Thank you for purchasing DIG's 700 series single, four or six-station battery operated controller. This manual describes how to get the 700 series up and running quickly. After reading this manual and having been familiarized with the basic functionality of the controller, this manual can be used as a reference for less common tasks in the future.

1. ABOUT THE CONTROLLERS

The 700 series battery operated controller's employ the latest engineering improvements for better operation. The 700 series controllers are available in single, four and six-station configurations and provide advanced and simple programming features for all types of light commercial applications. The 700 series is powered by 1, 9-volt battery and wrapped in a compact housing design that provides enhanced waterproofing capability. The 710, 740 and 746 controllers operate in conjunction with DIG's 2-wire DC latching solenoid (R710DC). DIG in-line globe valves are also available in sizes 3/4" to 2" with the solenoid pre-installed.

2. PARTS IDENTIFICATION

1. Cover
2. Battery compartment cover
3. Controller display
4. Programming buttons
5. Controller bracket
6. Valve mounting bracket
7. Wall mounting bracket
8. Solenoid wires
9. Sensor wires (optional)
10. Master valve wires (740 & 746 only)



3. SYSTEM COMPONENTS

To properly install 700 series controllers the following components are needed:

OPTION 1

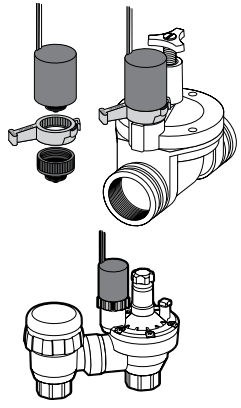
- 710-000 Single station controller with R710DC solenoid or with DIG in-line or anti-siphon valve assembly
- Optional valve adapter (see below)

OPTION 2

- 740-000 Four station or 746-000 Six station controller
- DIG in-line valve assembly, anti-siphon valve assembly, or R710DC solenoid (one for each valve used) if using existing valves
- Optional valve adapter (see below)

VALVE ADAPTER

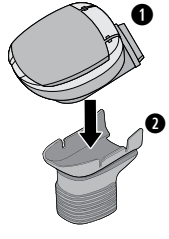
- Models P00-995 and P00-996 are used with RAIN BIRD, DV, PGA, PEB, PESB, GB, EFB-CP, BPE, and ASVF valves (adapter sold separately).



4. VALVE OR WALL MOUNTING

4.1 VALVE MOUNTING

1. Press the controller ❶ into the controller valve mounting bracket ❷.
2. Press the controller with the valve mounting bracket onto the solenoid and arrange the controller in a preferred position (see also pg 6).

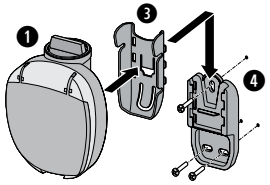


4.2 WALL MOUNTING

1. If not assembled, press the controller bracket ❶ into the back of the controller.
2. Place the mounting plate ❹ on the wall using 3 screws (not included).

3. Slide the controller assembly with the bracket up and into the mounting plate to secure. (Mounting solenoid sleeve ❷ is not used).

NOTE: Be aware that the length of the controller connecting cable limits the distance between the controller and the solenoid.

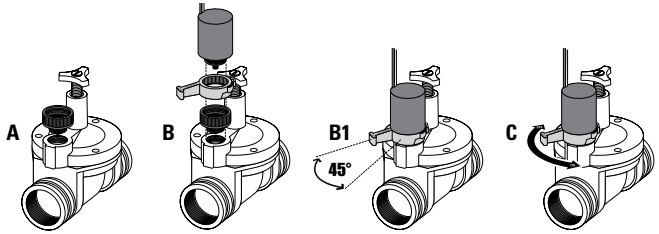


5. INSTALLATION

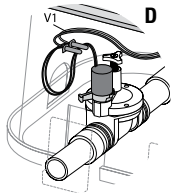
5.1 IN-LINE VALVE AND SOLENOID ASSEMBLY

NOTE: Suggested operating pressure: 10-120 PSI (.7 to 10.5 BAR)
Use DIG's DC valve assembly or solenoid model R710DC.

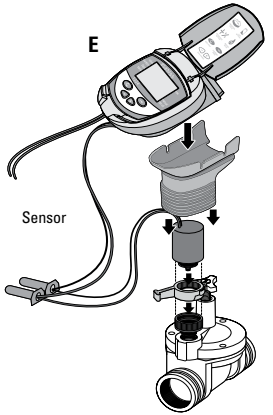
1. Shut off the mainline to the valve.
2. Install the DIG valve and latching solenoid assembly or unscrew the conventional solenoid from the valve used and remove the solenoid housing, solenoid stem, plunger, spring, and O-ring (if necessary).
3. Converting SUPERIOR valves: First, remove the SUPERIOR solenoid and O-ring and replace with one O-ring (DIG part #30-492) inside the solenoid thread cavity (this O-ring is included). Install the adapter then, slip the manual handle into the adapter. Attach the solenoid with the plunger and position the handle at a 45° angle towards the valve outlet (**see B1-C**). This creates a manual lever, helpful for manual on/off. Firmly tighten the solenoid by hand, but do not over tighten.
4. Converting IRRITROL (HARDIE) valves: Leave Irritrol manual handle in place (not applicable for 205 series). Screw the provided adapter into Irritrol adapter or directly into valve (205 series only). DO NOT use the orange manual handle provided with this installation. Screw the R710 DC solenoid with the plunger into the adapter.



5. Converting RAIN BIRD valves: Unscrew and remove Rain Bird AC solenoid. Install adapter model P00-996 into a Rain Bird valve and tighten the adapter with a wrench. Next, install the R710DC latching solenoid directly into the adapter clockwise and hand tight.
   DO NOT use the adapter with the orange handle provided.



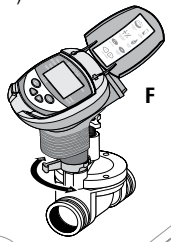
6. **Splice the solenoid hot wires (red) to the single station controller color-coded wires (red).** Splice the solenoid black wire to the single incoming white wire. **USE CONVENTIONAL DRY-SPLICE WATERPROOF CONNECTORS.** Leave some slack on each side of the wires so that repairs, if needed, can be carried out easily **(see D)**.

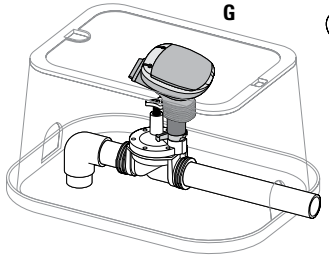


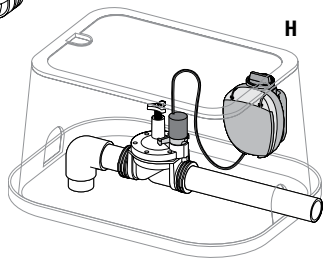
NOTE: Subsequent 710 Models (only) will have the solenoids hard wired into the controller eliminating the need for waterproof connectors.

7. Mount the controller – see section 4 on page 4 for wall or valve mounting (**see E, G, H**).

WARNING: FAILURE TO USE WATERPROOF CONNECTORS WILL VOID MANUFACTURER'S WARRANTY







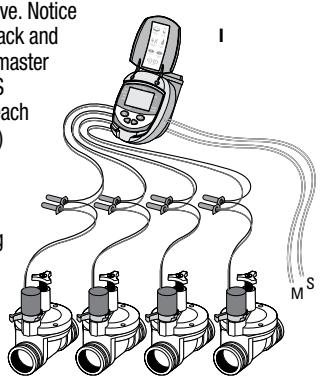
8. After installation is complete, turn on the water supply and pressurize the mainline. The valves will open momentarily and then shut off. Test each valve in manual operation by moving the manual handle from left to right to open and right to left to close. Do this to make sure that the valve is operating correctly (**see F**).

9. Program the controller (see section 8).

5.2 4 & 6-STATION INSTALLATION (740-000 & 746-000 ONLY)

NOTE: Each zone requires a dedicated pair of wires from the controller.

The four (740-000) and six (746-000) station controllers have red and black pairs of wires numbered for each valve. Notice there are 2 extra sets of wires. One set of wires (black and red) is stamped with the letter M representing the master valve, and one set of wires (yellow) with the letter S representing the rain sensor connection. Connect each of the controller wire sets (each with red and black) to each solenoid wire (red and black). Connect the red wire from the controller to the red wire on the solenoids and each of the black wires from the controller to each black wire on the solenoids using waterproof connectors (**see I**).



NOTE: If you install a master valve, it will open automatically with each valve.
No special programming needed.

NOTE: Do not strip the master valve or sensor wires unless using master valve or rain sensor.

IMPORTANT: If a valve remains open in manual operation, you may need to examine the solenoid and the adapter to see that they are installed correctly. Make sure the adapter is firmly secured but do not over tighten the solenoid to the valve (and do not cross thread the adapter into the solenoid cavity).

NOTE: The solenoid operates only with standard 2-way normally closed valves.

CAUTION: For all valves with built-in internal manual bleed lever, make sure the lever is in closed position. Do not move the manual lever after installing the solenoid using the valve adapter. If the manual lever on the valve is used, it can damage the adapter outlet port causing the valve to stay open.

5.3 ANTI-SIPHON VALVE AND SOLENOID ASSEMBLY

The anti-siphon valve assembly can be installed directly to PVC pipe. (Inlet 3/4 in. and 1" FNPT, outlet 3/4 in. and 1" FNPT.)

Maximum static pressure: 150 PSI

NOTE: *Wrap all fittings with Teflon tape.*

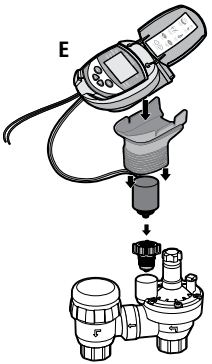
Do not use pipe cement on the valve as this will damage the valve and void the warranty.

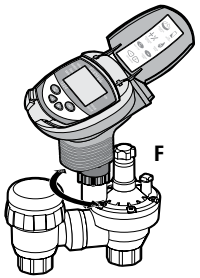
Make sure when wrapping fittings with Teflon tape that no excess gets into the internal assembly. Tighten the fittings with a wrench, but do not over tighten.

NOTE: *The anti-siphon valve assembly must be installed at least 6 in. higher than the highest sprinkler head on the system or back-drainage may occur. Additional control valves must* ***not*** *be installed downstream of the anti-siphon valve. The valve must not be operated continuously for more than 12 hours in any 24-hour period.*

Consult local codes for specific details.

1. Flush main line until water runs clear before installation.
2. Shut off main water supply.
3. Install the anti-siphon valve directly to PVC pipe using a 3/4 in. or 1 in. PVC male adapter or use Schedule 80 nipple.
   The arrow on valve body indicates direction of water flow (see Figure 6).





4. After installation is complete, turn on the water supply and pressurize the mainline. The valves will open momentarily and then shut off. Test each valve in manual operation by moving the adapter from left to right to open and right to left to close. Do this to make sure that the valve is operating correctly (**see F**).
5. Program the controller (see section 8).

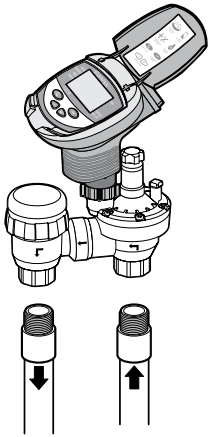


FIGURE 6

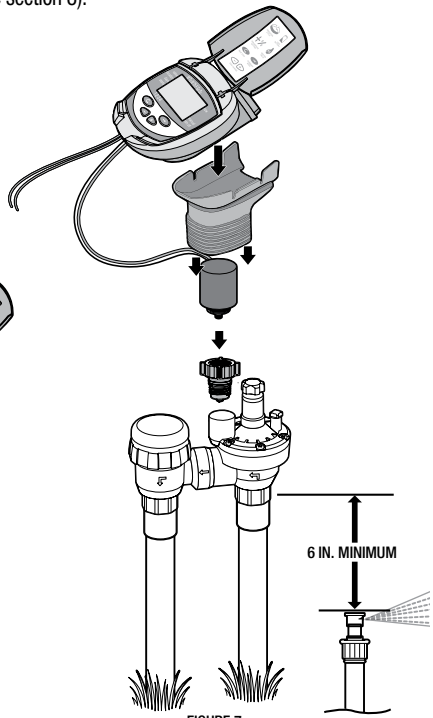


FIGURE 7

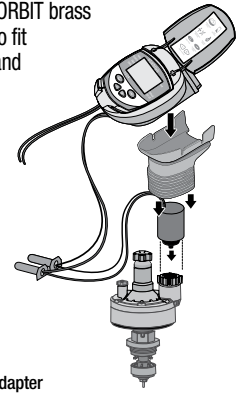
5.4 DC ACTUATOR ASSEMBLY AND INSTALLATION

NOTE: ***Subsequent 710 Models (only) will have the solenoids hard wired into the controller eliminating the need for waterproof connectors.***

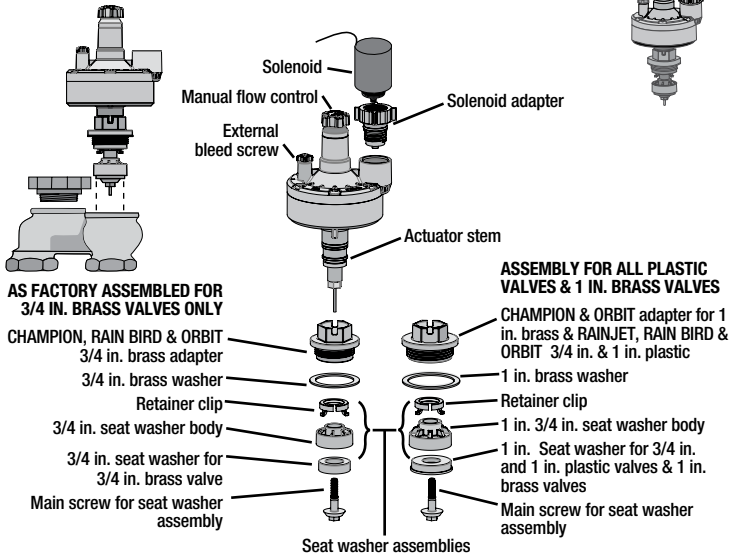
The actuator comes factory assembled to fit 3/4" CHAMPION and ORBIT brass manual anti-siphon valves. Included in the package are adapters to fit 1" CHAMPION, ORBIT brass manual anti-siphon valves, and 3/4" and 1" RAIN BIRD and ORBIT plastic manual anti-siphon valves.

Maximum operating pressure: 125 PSI

NOTE: Please select the proper adapter.



WARNING: FAILURE TO USE WATERPROOF CONNECTORS WILL VOID MANUFACTURER'S WARRANTY.



5.5 ADAPTER/SEAT WASHER INSTALLATION

The actuator is factory setup to fit 3/4 in. brass manual anti-siphon valves. To install the actuator on 1 in. brass anti-siphon valves and all other manual plastic valves, the 3/4 in. seat washer and adapters must be removed and replaced with the 1 in. adapter and seat washer which are included in this box.

1. Turn the actuator so that the seat washer and the 3/4 in. threaded adapter facing up.
2. Using pliers, remove the seat washer screw by turning counter clockwise and pull off the 3/4 in. seat washer assembly (see Figure A).
3. Push the 3/4 in. threaded adapter down (see Figure B).
4. Place your thumb on one side of the retainer clip and with a pair of pliers grip the other side of the retainer clip and pull outwards then upwards, removing it from the base of the 3/4 in. adapter threaded. Next, pull off the 3/4 in. threaded adapter from the actuator stem (see Figure C).
5. Install the 1 in. threaded adapter by pushing it onto the actuator stem and making sure the notch on the adapter lines up with the notch on the stem of the actuator (see Figure D).
6. Spread the retainer clip with your thumbs and push the retainer into the adapter until it clicks (see Figure E).
7. Install the 1 in. seat washer assembly making sure the plastic is on top and the rubber is facing down. Insert the seat washer screw into the bottom of the actuator stem and tighten with pliers by turning clockwise (see Figure E).

NOTE: Do not over-tighten.

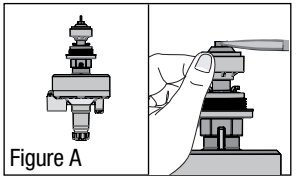


Figure A

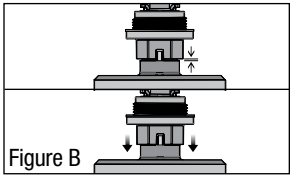


Figure B

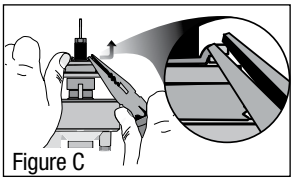


Figure C

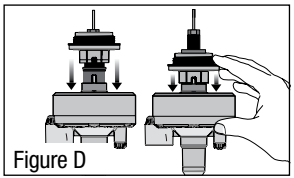


Figure D

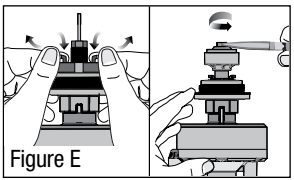
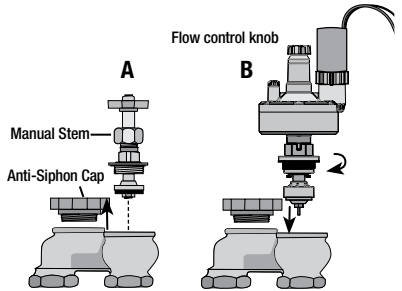


Figure E

INSTALLATION



1. Shut off main water supply.
2. Remove the manual stem from the existing valve and temporarily remove the anti-siphon cap (see A).
3. Replace any existing worn washers with the new ones provided.
4. Install the actuator with the controller into the manual anti-siphon valve body by turning actuator clockwise. Tighten firmly, but do not over tighten (see B).
5. Turn on main water supply.
6. Splice the solenoid hot wires (red) to the controller color-coded wires (red). Splice the solenoid white wire to the single incoming black wire. **USE CONVENTIONAL DRY-SPLICE WATERPROOF CONNECTORS.** Leave slack on each side of the wires so that repairs, if needed, can be carried out easily.
7. After installation is complete, test each valve in manual mode through the controller (see section 16 on page 16). Adjust the flow by turning the flow control knob, making sure that each valve is operating correctly.
8. Program the controller (see section 8 on page 12).

6. USING A SENSOR

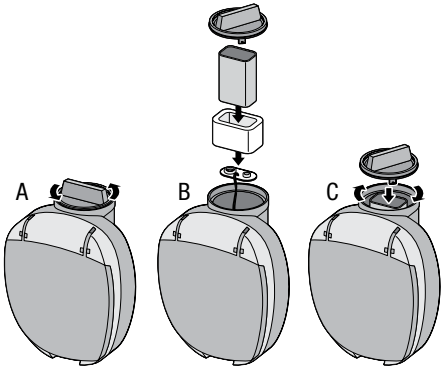
1. Carefully strip each of the controller's two yellow sensor wires.
2. Select a normally open sensor, or configure the sensor to be normally open (see sensor instructions).
3. Connect 1 of each yellow wire from the controller to each of the normally open wires from the sensor **USING WATERPROOF CONNECTORS**.
4. When the sensor is active, 🌡 appears on the display and the sensor will override the program when triggered.
5. Do not strip or cut the wire if a sensor is not used.
6. Follow the sensor manufacturer's instructions for calibrating the sensor.
7. Compatible rain sensors: Irritrol RS500.

7. BATTERY INSTALLATION

Rotate the battery compartment cover handle counter clockwise to the “11 o’clock” position to remove the cover (**see A**). Insert one 9-volt alkaline battery onto the terminal clips and slide the battery into the sleeve. Insert the battery into the battery compartment and reinstall the cover (**see B-C**). The controller display appears briefly followed by a water droplet on the lower left side of the display. The droplet will flash momentarily and shut off. When the display flashes “12:00” the controller is ready to be programmed.

IMPORTANT: To replace the battery compartment cover, insert the battery compartment cover with the handle in the “11 o’clock” position and then rotate the cover 1/4” clockwise to avoid breaking the cover guide pin.

IMPORTANT: Do not install battery before splicing controller/ solenoid wires (see section 5).



8. PROGRAMMING

This section explains the programming features, use of buttons and the steps necessary to assign irrigation schedules. To program the controller use the left button to select the desired programming mode, the right button to make the entry flash and the plus minus buttons to change the value.

Note: Only a flashing character can be changed.

DIG controllers are programmed with the aid of four buttons:

Use to select the desired programming mode

Use to lower the value of the selected parameter (e.g. deducts an hour)

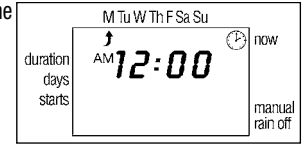
Use to raise the value of the selected parameter (e.g. adds an hour)

Use to select the parameter to be changed (hour, minute, etc.). To implement the changes, the selected parameter must be flashing.

If no changes are implemented, the controller will always revert to the main screen.

9. SETTING CURRENT TIME AND DAY OF THE WEEK

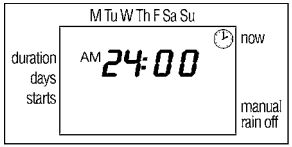
To enable the controller to operate properly, the current time and current day of the week must first be set. The steps below explain how to set the day and time.



Press ➔ and the hour digit will flash. Use the ⊕ or ⊖ to set the current hour (note AM and PM designations). Press ➔ and the minute digit flashes. Set the current minute using ⊕ or ⊖. Press ➔ and a flashing arrow will appear under “M” for “Monday”. Use the ⊕ or ⊖ to move the arrow to current day. Press ⟲ to proceed to the next step.

Note: If the last data entered stops flashing, press ➔ again to resume programming.

10. TIME FORMAT (SWITCHING BETWEEN AM/PM AND 24 HOUR)



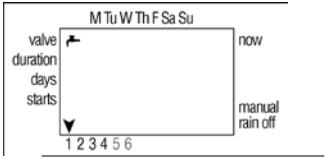
The default time format is AM/PM. There is also a 24 hour time format option. It is a simple process to switch between the two formats.

Press ⊡ several times until 🕐 appears.

Press ⊕ and the hour digit will flash. Press the ⊕ and ⊖ simultaneously. The clock reading switches from AM/PM to a 24 hour time display or vice versa.

NOTE: The time display format can be switched at any step in the programming process.

11. VALVE SELECTION (740-000 & 746-000 ONLY)

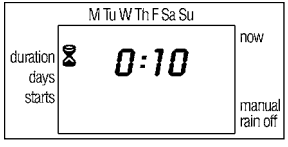


The four and six station controllers allow each station to be independently programmed. First select the desired valve following these steps:

Press ⊡ until ⊸ appears with an arrow above the valve number. Press ⊕. The arrow above the valve number will flash. Move the flashing arrow to the desired valve number by pressing ⊕ or ⊖. Press ⊡ to proceed to the next step. To program other station, first select the station number then repeat programming the station.

NOTE: This screen appears only on the 4-station (740-000) or 6-station (746-000) controller.

12. SETTING THE WATERING TIME (DURATION)



This setting determines the length of time that the valve will remain open.

Press ⊡ until ⧗ appears. Press ⊕ and the hour/minute digits flash. Set the desired number of hours by pressing ⊕ or ⊖. Press ⊕ again and the minute digits flash. Set the desired number of minutes by pressing ⊕ or ⊖. Press ⊡ to proceed to the next step.

13. SELECTING WATERING FREQUENCY

This setting determines which days the controller will operate. Choose either A) **Watering According to the Days of the Week** or B) **One-time Irrigation** or C) **Cyclical Irrigation**.

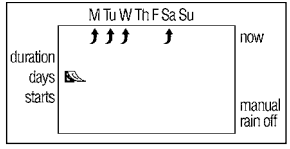
Press ⊡ until ⊿ appears. Press ⊕ and a flashing arrow appears at the top of the display, under Monday. At this stage select one of 3 options:

A. **Watering according to the days of the week**

B. **One-time only watering or cyclical watering**

C. **Cyclical Mode**

A. WATERING ACCORDING TO THE DAYS OF THE WEEK



To select a watering according to the days of the week, press ⊕ and move the flashing arrow to the desired day of the week. Press ⊕ and the arrow under the selected day stops flashing. In a few seconds the arrow moves one position to the right, and flashes under the next day of the week. Select additional days of the week in the same manner.

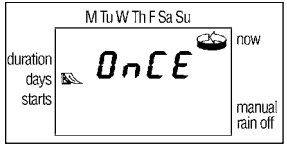
Press ⊡ to proceed to the next step.

To cancel a scheduled watering day press ⊕ and move the arrow under the selected day. Press ⊖ under the selected day, the arrow will disappear and the flashing arrow will move one position to the right, and appear at the next day of the week. Cancel additional scheduled irrigation days in the same manner.

Press ⊡ to proceed to the next step.

B. ONE-TIME IRRIGATION IN CYCLICAL MODE

This option is used to program the controller to operate the system one-time only, for the irrigation period as set in watering time (durations).

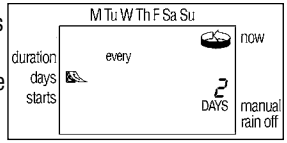


Press ⊡ until ⊿ appears. Press ⊕ several times (for all the days of the week) until 🚗 appears, and OnCE flashes on the display.

NOTE: In cyclical mode only 1 start time is available. See section 15 for setting start time.

C. CYCLICAL MODE TO WATER EVERY X DAYS

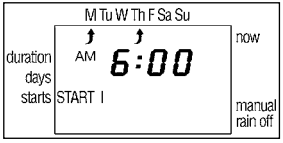
Press ⊡ until ✎ appears. Press ⊕ several times (to advance all the days of the week) until ⟳ appears, and **Once** flashes on the display. With the display flashing, press ⊕ or ⊖. The number of days between watering appears on the display.



For example, if "every 30 days" appears, watering will take place once every thirty days for the irrigation period as set in duration. To change the number of days press ⊕ or ⊖. Press ⊡ to proceed to the next step.

14. SETTING A START TIME – WATERING ACCORDING TO DAYS OF WEEK

In this step, up to 4 separate irrigation start times can be programmed in the weekly mode (watering according to the days of the week).



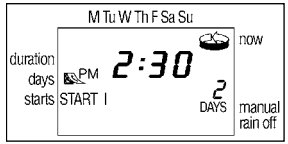
Press ⊡ until START I appears. The word OFF (or the last start time entered) appears. Press ⊕ the word OFF flashes. Press ⊕ or ⊖ to set the desired start time hour (note AM and PM). Press ⊕ the minute will flash. Press ⊕ or ⊖ to set the desired start time minute. Press ⊡ to set START II and repeat the same steps for start times number II, III, and IV for zones 2, 3 and 4 as needed.

To cancel one of the start times select it by pressing ⊡. Then press ⊕ and the hour digit flashes. Press ⊕ or ⊖ until the word OFF appears.

NOTE: Zones do not operate sequentially. Start time(s) must be entered for each zone. Calculate each run time to avoid overlapping.

15. SETTING A START TIME – CYCLICAL OR ONE-TIME WATERING (WITH OPTION TO DELAY VALVE START TIME)

This program is used to pre-set the valve start time (only one start time available) and the number of day(s) to delay the valve start time. The number of day(s) to delay option will appear on the display to the right of the irrigation start time above the word "days".



In this feature 0 days = program starts today; where 1 = program starts tomorrow, etc. (start can be delayed up to 30 days).

Press ⊡ until START I appears or the last opening time entered appears on the display. Press ⊕ and the hours and the AM/PM digits flash. Set the desired opening hour by pressing the ⊕ or ⊖ (note: AM and PM designations appear to the left of the hour digits). Press ⊕ and the minute digits flash. Repeat the same steps for setting the minutes. To delay watering press ⊕ again. The number above "days" flashes. Press ⊕ or ⊖ to change the number of days to delay the start time from today.

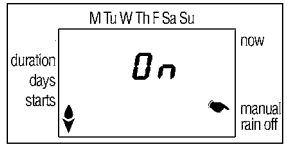
16. MANUAL OPERATION VIA THE CONTROLLER (SEMI-AUTOMATIC)

This option turns on the valve at any time and operates the system for the defined irrigation period. The valve will automatically close at the end of the irrigation period. The originally programmed irrigation schedule continues to function at the times set. (Model 740 & 746 see section 11 to select other valve.)

NOTE: In order to use semi-auto feature the controller must be programmed with the current day & time, duration, watering day & start time.

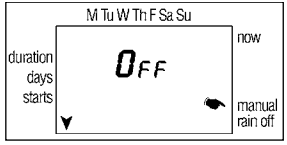
There are 2 ways to use the "semi-auto" feature.

Method 1: From the now screen (🕒) press and hold down the ⊕ button for a few seconds. A water droplet icon and a 🐢 appears in the display with the countdown of the remaining irrigation duration appearing a few seconds later. The valve will open and continue to water for the pre-programmed duration.



If watering needs to be stopped before the full duration; simply press the ⊕ button again.

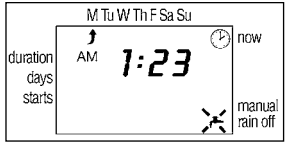
Method 2: Press ⊡ until 🖐 appears. Press ⊕ to open the valve. The word ON is displayed and a water droplet appears on the lower left side of the display. After 5 seconds, a count down of the remaining irrigation duration appears.



To close the valve manually before the end of the manual cycle press ⊡ until ON appears again. Press ⊖ to close the valve.

17. RAIN OFF (SHUTDOWN)

This option is used to temporarily suspend the controller operation. The irrigation schedule remains stored in the controller memory, but is not implemented until the suspension is canceled. The suspension option disables the valve.



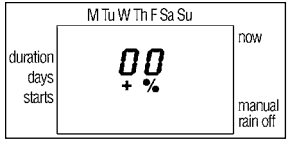
Press ⊡ until 🕒 appears. Press and hold down ⊖ for 5 seconds until ✂ appears flashing. The controller is now suspended. To restore control to the controller, press ⊡ until 🕒 appears, and then press and hold down the ⊖ until the ✂ disappears.

RAIN OFF can be used while a valve has been activated.

If an attempt is made to operate the valve manually while the controller has been suspended, or if the valve is programmed to open, the word “rain” appears, and the valve will not open.

18. BUDGET

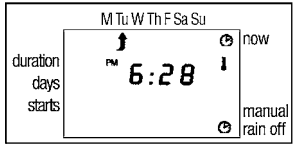
Watering durations may need to be increased in hot weather and decreased in cool or wet weather. This can be done without affecting programmed schedules by specifying a percentage increase or decrease.

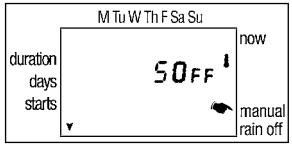


Press ⊡ until 🕒 appears, wait until no digit is flashing. Press ⊕ ⊖ simultaneously until 00+% is displayed. Press ⊕ and the 00 flashes. Press ⊕ or ⊖ to increase or decrease the percentage as necessary (in 5% increments from -95% to +95%). Displayed on the “now 🕒” screen is **+%** or **–%** when a budget choice is entered.

19. SENSOR OPERATION

To connect a sensor to the 700 series controllers, see section 6 on page 9. In the current time mode, the sensor icon 🌡 will appear when the sensor is tripped and “SOFF” will appear in the manual mode if a manual start is attempted.





20. MISSING PROGRAM DATA

During “manual” operation via the irrigation controller “no Prog” appears on the display (see section 16 on page 15), indicating that no time duration has been set for the valve. In this case, automatic opening of the valve is disabled.

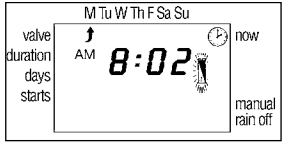
21. FLASHING LOW BATTERY WARNING

When the batteries are low, a flashing battery icon appears. In this state, the batteries still enable valve operation, but must be promptly replaced.

After replacing the batteries, press any button to resume controller operation.

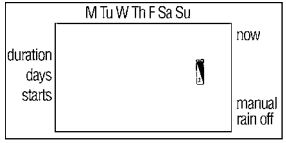
Programmed data is retained if batteries are replaced within a 30 second time period.

HINT: Simply replace one battery at a time.



22. CONSTANT LOW BATTERY WARNING

When the batteries are low and not replaced in a timely manner, the battery icon is displayed. All other display elements disappear and all valves are closed. Replace batteries promptly, and press any button to resume controller operation. Programmed data is retained if batteries are replaced within a 30 second time period.



23. MAINTENANCE, TROUBLESHOOTING AND REPAIRS

- Batteries should be removed if the irrigation controller will not be operated for a prolonged period.
- Under normal usage, batteries (alkaline) will last for a minimum of 1 year to a maximum of 2 years.
- It is good operating practice to replace old batteries with new ones at the start of the irrigation season.
- In-line valve recommended operating water pressure range: 10-80 PSI.
- In-line valve operating pressure range: 10-150 PSI.
- Actuator recommended operating water pressure range: 25-80 PSI.

CONTROLLER ISSUES 710, 740 & 746

PROBLEM: Opens in manual mode but not automatically
CAUSE: Duration has been set but all start times are off
SOLUTION: Set start time(s) in start mode
CAUSE: No water days have been set
SOLUTION: Set water days or cyclical frequency
CAUSE: Controller is set to water ONCE only
SOLUTION: Reprogram frequency mode

CAUSE: Rain off mode is active
SOLUTION: Deactivate RAIN OFF mode by pushing and holding down the minus button for five seconds

PROBLEM: Screen displays “50FF” when manual or programmed run is attempted
CAUSE: Rain sensor has been activated or improper sensor wire splice
SOLUTION: Inspect installed rain sensor for proper operation and replace if needed
SOLUTION: Inspect yellow sensor wire splices and re-splice with waterproof wire connectors if necessary
CAUSE: Normally closed sensor
SOLUTION: Use a normally open sensor.
CAUSE: Yellow sensor wires on irrigation controller are making contact with each other
SOLUTION: Insure that yellow sensor wires are not making contact with each other

PROBLEM: Screen freezing up or buttons not functioning
CAUSE: Controller may need to be reset
SOLUTION: Remove the 9 volt battery from controller for 30 minutes then reinsert the battery and program the controller.
CAUSE: Weak battery
SOLUTION: Replace battery

PROBLEM: Display is not fully readable
CAUSE: Faulty controller
SOLUTION: Replace controller

PROBLEM: Waters at wrong time or day of the week
CAUSE: Current time/day is not correct
SOLUTION: Set correct current time/day of week.

PROBLEM: No display
CAUSE: Incorrect battery type (non-alkaline)
SOLUTION: Use only alkaline 9 volt battery
CAUSE: No battery installed
SOLUTION: Install name brand alkaline type battery
CAUSE: Faulty controller
SOLUTION: Replace controller

TROUBLESHOOTING ¾”, 1”,1 ½” , 2” IN-LINE VALVES

PROBLEM: In-line valve does not open during automatic or “manual” operation via irrigation controller
CAUSE: Water supply is shut off
SOLUTION: Insure water supply is turned on and water is flowing to irrigation valve

CAUSE: Flow control on valve is turned too far clockwise

SOLUTION: Turn flow control counterclockwise

CAUSE: Valve flow control is shut down

SOLUTION: Open flow control

CAUSE: Faulty solenoid splice(s)

SOLUTION: Remove splices and re-splice using water proof wire connectors

CAUSE: Faulty solenoid

SOLUTION: Replace solenoid

CAUSE: Solenoid outbound flush/bleed port or solenoid adapter ports are blocked with debris

SOLUTION: Clean solenoid flush/bleed port of debris.

CAUSE: Diaphragm or valve bonnet orientation inside valve are incorrect.

SOLUTION: Remove valve bonnet and inspect the diaphragm orientation. *(Diaphragm has 7, 1/8 in holes around the outside rim, 6 holes line up with the screw holes the last 7th hole lines up with the tab just below solenoid on the valve bonnet. In addition, the tab on the valve bonnet should line up with the flush/bleed port in the center of the output side of the valve.)*

CAUSE: Weak battery or no battery

SOLUTION: Install or replace alkaline 9 volt battery

PROBLEM: In-line valve fails to close

CAUSE: Outlet flow may be to low

SOLUTION: Increase your flow rate by adding drip emitters or micro sprinklers

CAUSE: Valve is installed backwards

SOLUTION: Reverse valve so arrow points away from water source

CAUSE: Manual handle is in open position

SOLUTION: Turn manual handle to the right to AUTO position

CAUSE: Solenoid plunger is missing

SOLUTION: Unscrew solenoid and install plunger

CAUSE: Plunger is installed upside down

SOLUTION: Unscrew solenoid and remove plunger, invert it, and reinstall so rubber tip is exposed – the spring end goes in first

CAUSE: Valve diaphragm is torn or failed

SOLUTION: Replace diaphragm

CAUSE: Solenoid/valve adapter not tight on valve bonnet

SOLUTION: Tighten solenoid/valve adapter snugly to valve bonnet

CAUSE: Valve bleed screw open

SOLUTION: Close valve bleed screw

CAUSE: The valve or solenoid/valve adapters inbound port is blocked

SOLUTION: Flush and clear inbound port

CAUSE: Faulty solenoid

SOLUTION: Replace solenoid

CAUSE: Debris stuck in diaphragm seat or diaphragm bleed port partially blocked.

SOLUTION: Remove bonnet and diaphragm and clean diaphragm seat and bleed port

CAUSE: Missing or broken diaphragm valve spring

SOLUTION: Install or replace diaphragm valve spring

CAUSE: Crack in seat of valve body

SOLUTION: Replace valve body

CAUSE: Solenoid latched in the open position

SOLUTION: Perform a manual open and close on irrigation controller from the manual run screen

TROUBLESHOOTING ACTUATORS 710-011, R710DC-013

PROBLEM: Actuator does not close

CAUSE: Actuator is rotated too far counterclockwise

SOLUTION: Adjust flow by turning the flow control know clockwise until valve closes.

CAUSE: Debris stuck in seat washer

SOLUTION: Remove actuator from valve, clean or replace seat washer

CAUSE: Seat washer body may be cracked

SOLUTION: Replace seat washer and housing

CAUSE: The seat washer could be worn. Years of use and/or high pressure can cause a groove to form in seat washer.

SOLUTION: The 3/4" seat washer can be flipped over or replaced. The 1" seat washer must be replaced.

CAUSE: Bad or missing O-ring #3 above seat-washer housing

SOLUTION: Replace O-ring #3

CAUSE: Static pressure is above 120 PSI

SOLUTION: Install a mainline pressure regulator

CAUSE: Debris trapped inside actuator body

SOLUTION: Shut off water supply, remove solenoid, then open water supply momentarily and flush out solenoid ports. Then reinstall the solenoid. Open the water supply and test manually.

CAUSE: Faulty plunger – the plunger tip may have debris imbedded in rubber

SOLUTION: Replace plunger

CAUSE: The actuator is adjusted too far counterclockwise

SOLUTION: While the controller is not calling for irrigation, adjust actuator by turning the actuator body slowly clockwise in 1/4 turn increments – time until valve closes

CAUSE: Plunger is installed upside down or missing

SOLUTION: Unscrew the solenoid. Remove plunger and reinstall with the rubber tip exposed.

CAUSE: Actuator is rotated too far clockwise

SOLUTION: Rotate actuator counterclockwise

PROBLEM: Actuator does not open during automatic operation or during “manual” operation via irrigation controller

CAUSE: Water supply turned off

SOLUTION: Turn on water supply

CAUSE: Weak battery

SOLUTION: Replace battery

CAUSE: Incorrect battery type (non-alkaline).

SOLUTION: Change the battery to a brand-name alkaline type battery

CAUSE: Solenoid not spliced to controller wires

SOLUTION: Splice solenoid wires to controller wires

CAUSE: Poor solenoid wire splice

SOLUTION: Cut off old solenoid splices, re-splice solenoid wires using waterproof wire splices and fresh, newly unsheathed wires.

CAUSE: Actuator is out of adjustment by being turned too far clockwise

SOLUTION: Rotate actuator counterclockwise

CAUSE: Actuator ports are blocked

SOLUTION: Shut off water supply, remove solenoid, open water supply momentarily and flush out solenoid ports. Reinstall the solenoid. Open water supply and test manually.

CAUSE: Faulty solenoid

SOLUTION: Replace solenoid

CAUSE: Faulty/clogged actuator

SOLUTION: Replace actuator

PROBLEM: Water discharges from anti-siphon cap.

CAUSE: Heads are above valve

SOLUTION: Raise valve 6” above highest emitter or use angle valve

CAUSE: Anti-siphon float is missing or damaged

SOLUTION: Check or replace float

CAUSE: Valve is installed backwards

SOLUTION: Reverse valve

CAUSE: Actuator may be out of adjustment

SOLUTION: Rotate actuator 1/4 turn counter clockwise

CAUSE: Insects or debris in anti-siphon cap

SOLUTION: Check float and spinal for foreign matter

For additional troubleshooting please visit: www.digcorp.com/700_troubleshooting

24. WARRANTY

DIG CORPORATION warrants these products to be free from defects in material and workmanship for a period of three years from date of purchase. This warranty does not cover damage resulting from accident, misuse, neglect, modification, improper installation or subjection to line pressure in excess of 150 lbs per square inch for inline valves and 90 PSI for actuators. This warranty shall extend only to the original purchaser of the product for use by the purchaser. This warranty shall not cover batteries or any malfunction of the product due to battery failure.

The obligation of DIG CORPORATION under this warranty is limited to repairing or replacing at its factory this product which shall be returned to the factory within three years after the original purchase and which on examination is found to contain defects in material and workmanship. **DIG CORPORATION SHALL IN NO EVENT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND; THE SOLE OBLIGATION OF DIG BEING LIMITED TO REPAIR OR REPLACEMENT OF DEFECTIVE PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.**

Unattended use for prolonged periods without inspection to verify proper operation is beyond the intended use of this product, and any damage resulting from such use shall not be the responsibility of DIG CORPORATION. There are no warranties, which extend beyond the description on the face hereof. In the case of purchase of the product for use other than, for irrigation purposes, DIG CORPORATION hereby disclaims any implied warranties including any warranties of merchantability and fitness for a particular purpose. In the case of the purchase of the product for personal, family or household purposes, DIG CORPORATION disclaims any such warranties to the extent permitted by law. To the extent that any such disclaimer or implied warranties shall be ineffectual, then any implied warranties shall be limited in duration to a period of three years from the date of the original purchase for use by the purchaser. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

In order to obtain performance under this warranty, the unit must be returned to the factory, along with proof of purchase indicating original date of purchase, shipping prepaid, addressed as follows:

DIG CORPORATION, 1210 Activity Drive, Vista, CA 92081. Repaired or replaced units will be shipped prepaid to the name and address supplied with the unit returned under warranty. Allow four weeks for repairs and shipping time. Repair of damaged units not otherwise within warranty may be refused or done at a reasonable cost or charge at the option of DIG CORPORATION.

This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

25. TECHNICAL ASSISTANCE

Should you encounter any problem(s) with this product or if you do not understand its many features, please refer to this instruction manual first. If further assistance is required, DIG offers the following customer support:

TECHNICAL SERVICE USA

- DIG's Technical Service Team is available to answer questions in English and Spanish from 8:00 AM to 5:00 PM (PST) Monday-Friday (except holidays) at 800-344-2281.
- Questions in English and Spanish can be e-mailed to questions@digcorp.com or faxed to 760-727-0282.
- Specification documents and manuals are available for downloading in English and Spanish at www.digcorp.com.

DIG

1210 Activity Drive
Vista, CA 92081-8510, USA

www.digcorp.com
e-mail: dig@digcorp.com

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