

Rain Pro
Intelligent Irrigation Solutions

HDC Controller

Operating Manual 4 or 6 Station

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Read Entire Instruction Booklet Before Installation

English
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SPECIFICATIONS:

- A maximum of two valves may operate at one time.
- Maximum output per station 0.4 amp@24VAC.
- Operating Temperature 32°F to 130°F (0°C to 54°C)

TERMINAL BLOCK:

RS RS = RAIN SWITCH

AC AC = 24VAC

COM = COMMON

MV = MASTER VALVE

S1 S2 S3 S4 S5 S6 = VALVE CONNECTIONS

MOUNTING THE HDC CONTROLLER

- 1) Locate controller within 5 ft. of a standard electrical outlet that provides continuous, uninterrupted power. Do not install controller within 15 ft. of a pump, pump start relay or any high voltage junction boxes or electric motors.
- 2) Choose desired location and install one screw for top keyhole into wall. Remove bottom panel and insert two additional screws in each of the bottom corners in the holes provided. Use screw anchors if attaching to drywall or masonry.

CONNECTING VALVE WIRES TO CONTROLLER

- 1) Remove lower panel cover.
- 2) Connect one wire from each valve to the desired corresponding number on the terminal.
- 3) Connect the remaining valve wire from all the valves to the “Com” or common terminal. It is suggested to use a different color wire for the common wire to help keep organized. “Common” wires may be bundled or wired together with all other common wires from all the valves to the “Com” terminal of the controller.

- 4) Wire sizing should be of significant size to allow a maximum of 5 volts drop between controller and valves. Use Ohms' Law to calculate wire voltage drop.
- 5) Replace cover.

Note: All in-field wire splices should be made using a dry type waterproof, gel-filled Hit Products DBC-Y type connector or equivalent.

CONNECTING POWER SOURCE

- 1) Leave electrical power unattached until all valve wires are connected to the controller.
- 2) Remove lower panel cover to gain access to the terminal connectors. Insert the two wires from the plug-in transformer into the two terminals
- 3) marked 'AC' "AC".
Replace cover.

MASTER VALVE/PUMP START WIRING

If a master valve or pump start relay is being used in conjunction with this controller, wire as follows.

- 1) Connect one wire to the “MV” terminal and one to the “Com” terminal.
- 2) If using a pump start relay, it must be;
 - a) Located at least 15 feet from controller.
 - b) Have a maximum rated inrush current less than 350MA at 24 VAC, and be properly sized for your application.

Hit Products offers a wide range of pump start relays for most applications that are compatible with the HDC controller.

Note: DO NOT connect controller directly to pump. Controller will be damaged if controller is connected directly to pump.

SENSOR WIRING

A rain sensor or any other type of normally closed micro-switch sensor may be used in conjunction with this controller. Sensor activation will interrupt controller output.

- 1) Remove lower cover.
- 2) Route the 2 wires from the sensor to the bottom of the controller and connect one each wire to the two “RS” terminals.
- 3) If the “RAIN SENSOR” switch on the front of the faceplate is in the “ON” position and no sensor is connected. The display will show a flashing “SENSOR” and no irrigation will occur. To override the problem when no sensor is connected-always leave the “RAIN SENSOR” switch on the front panel in the “OFF” position.

**DEFAULT PROGRAM, POWER
FAILURE, LOW BATTERY OR
NO BATTERY INSTALLED**

The controller does not require a default program after a power outage. The controller has non-volatile memory to retain your custom program. Four AAA Alkaline batteries maintain the real time clock and calendar. (Batteries should be changed annually.)

Should there not be sufficient battery power to maintain the real time clock and calendar and there is a power outage; when the electrical power returns, the controller will default to midnight and Saturday.

Note: The controller will Run scheduled programs according to the displayed Day and Time. You will need to reset the controller to current time and calendar.

DISPLAY	CURRENT CONDITION
NOPO	No AC power to controller
LOBA	Low battery or no battery

NOPO will blink on-off if no AC power is available and battery is installed and charged.

LOBA will blink on-off if low battery or no battery. Rotating the dial will stop blinking for one minute and display will return to normal for programming or to review program.

Display will return to blinking after one minute if low battery or no battery condition exists. If LOBA flashes after a power disruption, the clock and calendar may have to be reset, as no AC power or battery power was available to keep real time.

PROGRAMMING THE CONTROLLER

To successfully program controller, all three programming elements must be completed.

They are:

Program Start Times (Time of day a complete programmed irrigation cycle will start).

Station Run Times (The length of time each station/valve will irrigate).

Calendar/Schedule (The days of week/calendar that you desire to irrigate).

To program the controller, you are provided + or – buttons that will change the value of the “Flashing display”. The ← or → change the subject of information that is flashing. The subject or “Flashing display” is in sequence and can be scrolled forward → or backward ← to access all desired programming options.

BASIC PROGRAMMING FEATURES

- 1) Three independent programs are available “A”, “B” and “C”.
- 2) Three program start times are available per program.
- 3) Calendar/schedule, days of week or ODD/EVEN days.
- 4) Individual station run times.

INPUT THE CURRENT DATE AND TIME

- 1) Turn the dial to the CURRENT DATE/TIME.
- 2) Use the + and – buttons to select the current year.
Push the → button to activate the month.
- 3) The month will be flashing. Use the + and – buttons to select the current month. Press the → button to set the day.
- 4) The day will be flashing. Use the + and – buttons to select the current date. Push the → button to set current time.
- 5) The time will be displayed. Use the + and – buttons to select the current AM or PM hour notation. Press the → button to go to hours. Hours will be flashing. Use the + and – buttons to set the current hour.
Push the → button to set minutes.

SETTING PROGRAM START TIMES

- 1) Rotate the dial to program “START TIMES”.
- 2) Choose program A, B or C. To change program from existing program, push the PRG button.
- 3) Use the + and – buttons to adjust to desired start time. Start times are available every 15 minute increment of the hour. This represents the time of day the irrigation cycle will commence. All stations with programmed run time on this program (A, B or C) will come on, one at a time, sequentially, on all active days, commencing at this time of day. Up to three start times can be scheduled per day.
- 4) Push the → button to add another start time or the PRG button to set the next program.
- 5) If all 3 programmed start times are turned “OFF” then that specific program will not start.
- 6) To eliminate a start time, set dial to “START TIMES”. Use the + button to scroll to 11:45 PM. Then push the + button once to attain the “OFF” display.

- 7) If two or more programs are to start at the same time, only the first program will start and run. At the completion of that program running, the next program will run, and so on until all multiple start times are run. This is called “stacking”.

ESTABLISHING INDIVIDUAL STATION RUN TIMES

This is the setting for establishing how long each independent “valve” or “station” will be on to irrigate. Each station will come on in numeric sequence for this duration as set for each Station Run Time.

- 1) Rotate dial to the “Station Run Times” position.
- 2) Choose program A, B or C. To change program from existing program, push the PRG button.
- 3) Press the + or – button to increase or decrease the length of time you desire this specific station (valve) to be “ON” each time this valve is activated on this specific program.

- 4) Press the → button to go to the next station.
- 5) Repeat steps 3 and 4 for each station that is to be active on each specific program. For stations/valves that are to be inactive on each specific program, put “Station Run Time” at “0”.
- 6) Each individual “Station Run Time” can range from 1 minute to 6 hours in duration.
- 7) Rotate dial to “RUN” to enter this new data into controller.

SETTING THE CALENDAR

- 1) Rotate dial to the Calendar/Schedule position.
- 2) Choose program A, B or C. To change program from existing program, push the PRG button.
- 3) Using the + and – buttons will make a day either active or inactive. “+” indicates an active day or non-circled. Press the “-” button to change to a circled day, which indicates an inactive day. Press the → button to advance to the next day.

- 4) Repeat step 3 for each day of the week. The → button may be used to advance to a particular day of the week. To operate “odd” or “even” days of the month, continue advancing the → button and then activate “odd” or “even” as described in step 3 above.

DIAL POSITIONS AND FUNCTIONS

“RUN”

Rotate the dial counter clock wise to the “RUN” position after completing any programming to enter this new data in controller. Leave the dial in the RUN position to have the controller operate as programmed automatically.

RAIN/OFF

Rotate the dial to the “RAIN/OFF” position to stop all output of the controller. All irrigation will stop. Display will flash “OFF”. To return to normal operation, rotate dial back to “RUN”.

MANUAL STATION

To manually activate a single station for one watering cycle for a programmed length of time.

- 1) Rotate dial to “Manual Station”.
- 2) Push → to desired station number.
- 3) Push + or – buttons to input length of time, this station will now operate this programmed time.
- 4) Rotate dial to “RUN” position, valve will now turn on.
- 5) Upon completion of this station operating manually for length of time programmed, controller will revert back to “RUN” and operate as previously programmed.

MANUAL PROGRAM

To manually activate one complete cycle of either program “A”, “B” or “C”.

- 1) Rotate dial to “Manual Program”.
- 2) Choose program A, B or C. To change program from existing program, push the PRG button.

- 3) Push the → button to choose the first station in the sequence of the manual program to start.
- 4) The “run time” for each station will be displayed as currently programmed. **For this cycle only**, you can customize each station run time without effecting the individually programmed station run times within a program.
- 5) Push the → button to sequence through all the stations, using the + or – buttons to select the desired run times for this cycle only.
- 6) Push the → button until the station number appears of which you want to start this custom cycle.
- 7) Rotate dial to “RUN” to start this custom, one-time cycle. It will start with station number displayed in Step 6. Once completed, controller will revert to programmed “automatic” operation.

SEASONAL ADJUST

The seasonal adjust feature provides a one step universal run time adjustment in 10% increments up or down for all programs. It effects all station run times in all programs. In hotter, drier weather, you can increase the water budget in 10% increments up to 200% of originally programmed station run times. In periods of cooler/wetter weather, you can water budget downwards – in 10% increments to as low as 10% of originally programmed station run time.

- 1) Rotate dial to Seasonal Adjust % position.
- 2) Use the + or – buttons to adjust the percentage desired.
- 3) Actual run times for each station will be a % of the time programmed for station runtime.
The display always shows 100% setting.

RE-SETTING OR ERASING CONTROLLER MEMORY

If you want to eliminate all past programming input to controller, as if to start over as new, with no data in controller, proceed as follows:

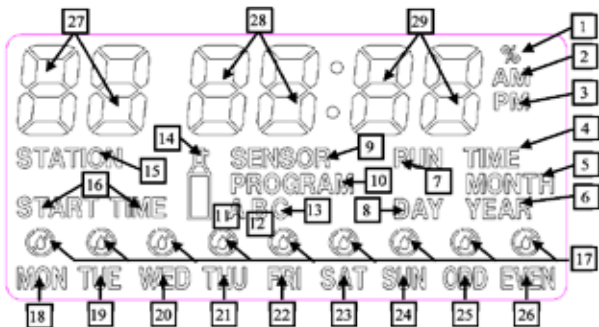
- 1) Press the →, the – button and the PRG buttons simultaneously.
- 2) Controller will now display 12:00 a.m. and all the entered data has been erased.
The controller can now be programmed as if brand new.

Note: This is recommended on new installations before programming for the first time.

TROUBLE SHOOTING GUIDE

<p>No Display information.</p>	<p>Check AC Power Supply, power at the controller should be 24-26 VAC. Check AC wiring. Check power at wall plug.</p>
<p>Display reads “Sensor Off”.</p>	<p>Slide Rain Sensor switch to “off” or install a sensor jumper wire on terminal strip connecting “RS” and “RS” terminals.</p>
<p>Controller is irrigating at incorrect start time.</p>	<p>Check Programming, Day, Time, AM-PM. Start Times and Active Day.</p>
<p>Controller is operating properly but valve or valves do not activate.</p>	<p>Check both station and common wiring and connections between controller and valves. Check for 24 VAC at valve solenoid.</p>



ICONS ON THE THC DISPLAY



Icon Description

- | | |
|---------|---------------------------------|
| 1) % | Indicates Seasonal Adjust. |
| 2) AM | Indicates time of day AM or PM. |
| 3) PM | Indicates time of day AM or PM. |
| 4) TIME | Displayed to set current time. |

- 5) **MONTH** Displayed to set current month.
- 6) **YEAR** Displayed to set current year.
- 7) **RUN** Displayed to indicate program is running.
- 8) **DAY** Displayed to set current day.
- 9) **SENSOR** Automatic operation is suspended by rain sensor.
- 10) **PROGRAM** is displayed to change program.
- 11) **A** Displayed when running or setting the respective program.
- 12) **B** Displayed when running or setting the respective program.
- 13) **C** Displayed when running or setting the respective program.
- 14) Displayed when the station is running.

- 15) **STATION** Displayed when programming the station.
- 16) **START TIME** Displayed when programming the start time.
- 17) Displayed for programming watering day or non-watering day in the “calendar”
-  Indicates active day
-  Indicates non-active day.
- 18-24) Displayed for programming watering day.
- 25) **ODD** Displayed for programming **ODD** day watering schedule.
- 26) **EVEN** Displayed for programming **EVEN** day watering schedule.
- 27) Displays the station number.
- 28-29) Displays year/month/date/time.



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