

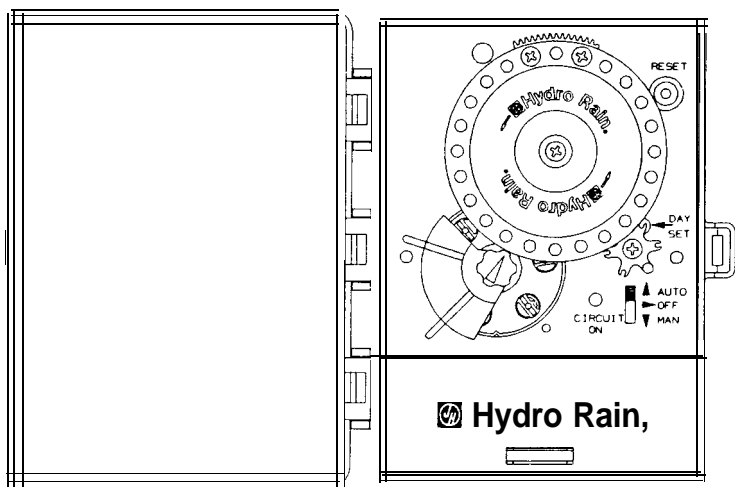
Hydro Rain.

Single-Program Mechanical Controller

Installation and Operation Guide

◆ *For Models HRM-4/HRM-6/HRM-4i/HRM-6i*

◆ *Please read instructions completely before attempting to install or operate controller*



Contents

This manual explains how to install your Hydro Rain sprinkler controller and program it for the watering schedule that's right for your garden. The following sections are arranged to match the most efficient installation sequence. Refer to them in the order presented for best results.

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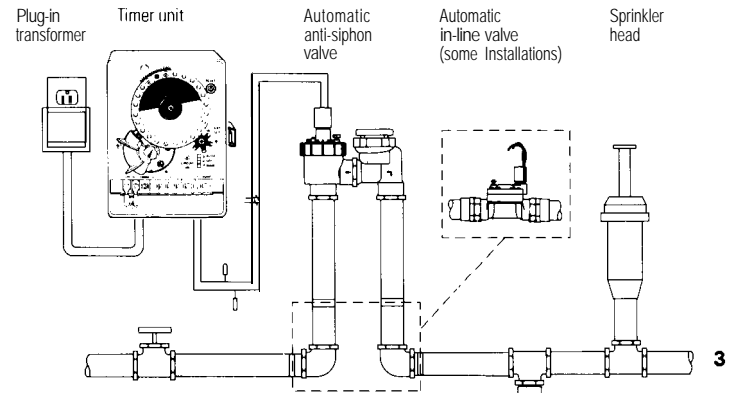
Introduction

Your Hydro Rain sprinkler controller is the heart of your automated watering system. It lets you supply different parts of your lawn and garden with precisely the water they require, exactly when they require it. All without any effort on your part once you've programmed your system. The Hydro Rain HRM-4, HRM-4i, HRM-6, and HRM-6i controllers give you four ways to control how you distribute water to various parts of your yard. Here's how they work: Station Control Lawns, shrubs, flower beds and other foliage all need

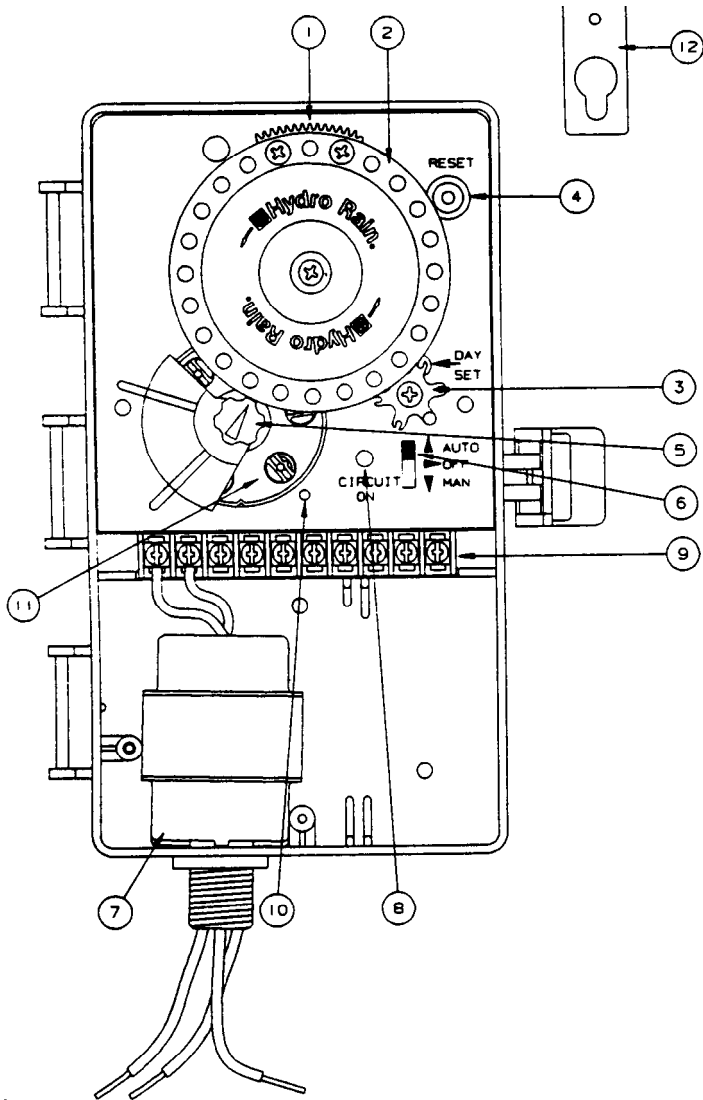
different amounts of water. You can tailor the water delivered to different parts of your Yard by assigning a different run time to one or more sprinkler heads controlled by a single valve. Each valve and the sprinklers it controls are called a Station. The HRM-4 and HRM-4i let you divide your yard into as many as four Stations; the HRM-6 and HRM-6i allow as many as six. Day Schedules You can program your controller to water either by day interval or on specific days of the week. For instance, you might choose to water every other day fusing 6-day dial), or perhaps on Monday,

Wednesday, and Saturday of every week (using 7-day dial). Start Times You can set up to six different times a day to repeat the watering cycle you've programmed. For example, once at 6 AM and again at 10 AM and 2 PM on an every day watering schedule. Watering run times To deliver the correct amount of water to the foliage within each Station, you can set each Station to shut off after a specified period of time—from 5 to 45 minutes with the HRM-4 and HRM-4i and 5 to 30 minutes with the HRM-6 and HRM-6i.

Here's how the controller connects to your system



(illustration of outdoor controller)

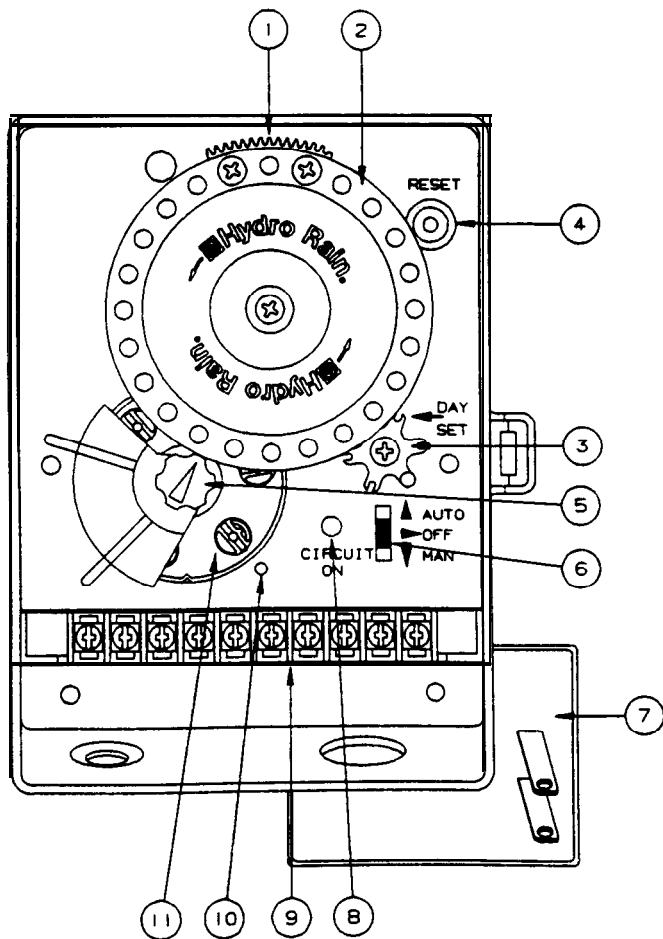


Features of outdoor model

1. **Tripper gear**
Activates watering cycle; optional additional gears let you set up to six start times a day.
2. **Time dial**
For setting current time of day.
3. **Skip-a-day dial**
For setting which days to water ; use six-spoke dial for regular intervals, seven-spoke dial for specific days of the week.
4. **Circuit breaker**
Shuts down system in case of electrical problem in wiring or valves; resets with push of a button.
5. **Station selector knob/time-of-day index**
For selecting desired station to water manually and for setting current hour on time dial (2).
6. **Rain shutoff**
For shutting down system in case of rain, or selecting manual or automatic modes.
7. **Internal transformer**
For converting 120-volt household current into safe, low-voltage power.
8. **Circuit indicator light**
Indicates watering in progress; remains lit when timer is in manual mode.
9. **Terminal screws**
For connecting valve wires to controller.
10. **Station alignment dot**
Aligns with Station number on Station selector when manually watering a selected Station.
11. **Run time selector**
For setting separate watering run times for each Station—from 5 to 45 minutes with the HRM-4 and HRM-4i and 5 to 30 minutes with the HRM-6 and HRM-6i.
12. **Hanger**
For mounting case to wall.

Features of indoor model

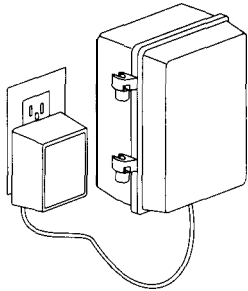
1. Tripper gear
Activates watering cycle; optional additional gears let you set up to six start times a day.
2. Time dial
For setting current time of day.
3. Skip-a-day dial
For setting which days to water ; use six-spoke dial for regular intervals, seven-spoke dial for specific days of the week.
4. Circuit breaker
Shuts down system in case of electrical problem in wiring or valves; resets with push of a button.
5. Station selector knob/time-of-day index
For selecting desired station to water manually and for setting current hour on time dial (2).
6. Rain shutoff
For shutting down system in case of rain, or selecting manual or automatic modes.
7. External transformer
For converting 120-volt household current into safe, low-voltage power.
8. Circuit indicator light
Indicates watering in progress: remains lit when timer is in manual mode.
9. Terminal screws
For connecting valve wires to controller.
10. Station alignment dot
Aligns with Station number on Station selector when manually watering a selected Station.
11. Run time selector
For setting separate watering run times for each Station-from 5 to 45 minutes with the HRM-4 and HRM-4i and 5 to 30 minutes with the HRM-6 and HRM-6i.



Installing the Controller

The HRM Series Controllers are operated by electric motor and require 24 volt AC current from the plug-in or internal transformer to operate. Plug-in transformer models are NOT weather protected and must be installed indoors (garage, work shed, etc). Internal transformer models have a lockable weather resistant case and may be installed outdoors.

Select the Location



A. For the HRM-4i and HRM-6i, choose an indoor location near a standard 120 volt dual electrical outlet.

6. For the HRM-4 and HRM-6, if the controller is installed outdoors, choose a location that is dry and away from direct water spray. A dry shaded location is best.

CAUTION: Don't place the controller where temperatures may exceed 130° F (55 C), on a circuit controlled by a switch, or on the same circuit as a high power user (refrigerator, air conditioner, etc.). Malfunctions may result.

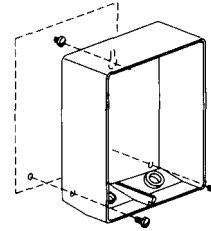
Mount the Controller

For indoor models HRM-4i and HRM-6i

A. Install a No. 8 screw at eye level in the wall leaving 1/8" of screw head projecting.

B. Slip the keyhole opening on the back of the controller over the screw head.

C. Open the controller case and install two screws through the holes in the wiring compartment at the bottom of the controller.



For outdoor models HRM-4 and HRM-6

A. Screw the enclosed wall hanger into the top backside of the controller.

B. Install a No. 8 screw at eye level in the wall leaving 1/8" of screw head projecting.

C. Place wall hanger over screw to hold the controller.

D. Open the controller door and remove the lower wiring cover plate marked CAUTION HIGH VOLTAGE. Install additional screw in the lower wiring compartment to stabilize the controller.

NOTE: To install controller on a plaster or masonry wall, use plaster or lead anchors to secure screws.

Connecting the Valves

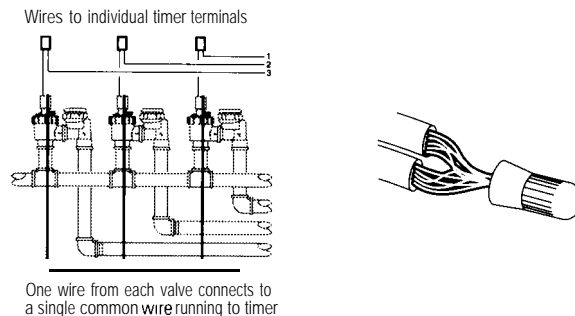
Wire the valves

A. Run valve wiring underground wherever possible. For line runs less than 800 feet long, use 18-gauge plastic jacketed thermostat control wire; over 800 feet, use 14-gauge wire. Your dealer can provide this wire in 2, 3, 4, 5, 6, 7 and 8-wire color-coded strands.

B. Connect a single common wire to one of the wires from each valve.

C. Solder or join all splices with wire nuts; then seal with vinyl or waterproof cement to assure a water-resistant connection.

IMPORTANT: The power transformer is protected by an electronic circuit breaker. Do not connect a combination of valves requiring an inrush current of more than 1 amp at 24 VAC.



Connect the valve wires to controller

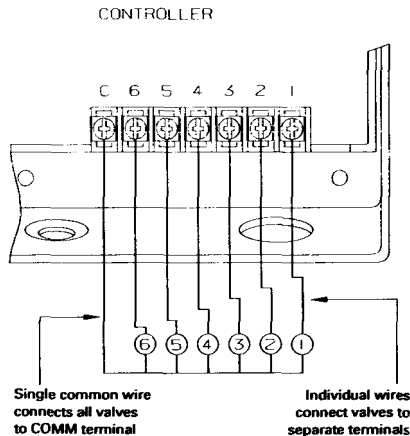
A. Run all valve wires up through hole in bottom right side of controller.

B. Connect the wire from valve number 1 to the terminal screw marked 1 on the controller; the wire from valve number 2 to the terminal 2, and so on. This allows your controller to selectively water the Station controlled by each valve.

NOTE: On the HRM-6 and HRM-6i, terminal designations are marked on the inside of the wiring cover.

C. Connect the common wire to the terminal marked COM.

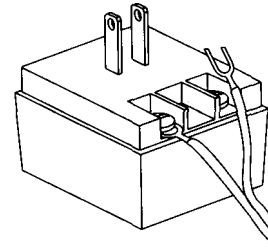
D. If using a water pump or master valve, refer to page 16 for installation details.



Connecting the transformer

Connect the transformer

For indoor models HRM-4i and HRM-6i



A. Connect one lead of the power cable from the controller to each terminal screw on the transformer. Make sure terminals at end of cable do not touch.

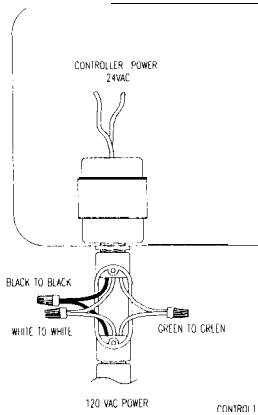
B. Plug in the transformer.

C. If your controller must be mounted a greater distance from the outlet, replace the supplied power cord with a similar electrical cord (available from hardware and electrical supply stores).

CAUTION: Use with supplied transformer ONLY!

NOTE: Due to varying regulations, check your local codes.

For outdoor models HRM-4 and HRM-6



A. The 120 volt power wires to the transformer must be fed through conduit piping whether the controller is installed indoors or outdoors.

B. Secure a conduit to the controller by an appropriate conduit fastener.

C. Use wire nuts to make the electrical connections. Green wire is earth ground, black is hot and white is neutral.

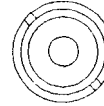
D. Replace the high voltage cover plate and screw after connections are made.

CAUTION: Switch the electrical power off at the circuit breaker panel before making connection. A LICENSED ELECTRICIAN CAN MAKE THESE CONNECTIONS FOR YOU.

Circuit breaker

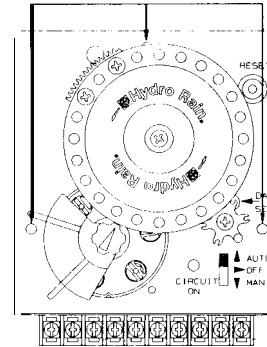
If an electrical fault occurs in any valve or the wiring that controls it, the circuit breaker will shut down the system on the Station where the problem has occurred. After correcting the fault, reset the breaker by pushing the reset button.

RESET



To remove controller chassis

To withdraw the controller chassis from its case for repair or other reasons, remove the three screws that hold it in place as shown.



Selecting the right program

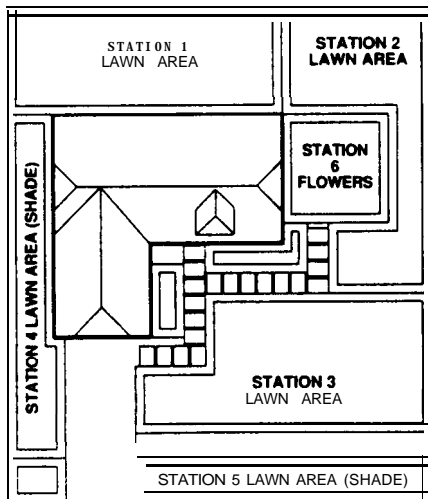
Dividing up your yard

Stations let you assign a specific run time to one or more sprinkler heads controlled by a single valve. This makes it possible to deliver the correct volume of water to areas of your yard with different watering needs.

For example, you might assign Stations 1, 2, and 3 to lawn areas on the sunny side of your home and Stations 4 and 5 to lawn areas in the shade. You might then assign Station 6 to a flower garden.

In the example above, you might set run times of 30 minutes for Stations 1, 2, and 3; 20 minutes for Stations 4 and 5; and 15 minutes for Station 6.

NOTE: You need not use all Stations available on the controller.



Setting the day schedule

Set skip-a-day dial

The skip-a-day dial lets you choose how to program the days on which your controller will water. Use the pre-installed six-day dial to water at day intervals (e.g., every 2nd or 3rd day). Use the 7-day dial supplied in your accessory pack to water on specific days (e.g., Monday, Wednesday, Saturday).

A. Install the appropriate skip-a-day dial, using the screw provided. Use the six-spoke dial for interval programs, or the seven-spoke dial for days of the week.

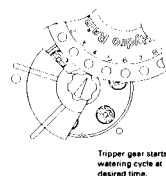
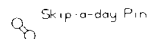
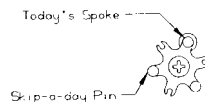
B. Insert skip-a-day pins in spokes for days on which you DON'T want to water.

C. Rotate skip-a-day dial clockwise until spoke you've chosen for today is directly on top of Day Set switch.

Set current time of day

A. Rotate the time dial counterclockwise until proper time of day (note AM and PM markings) is opposite arrow on Station selector knob.

B. Gently rotate time dial clockwise until you feel firm resistance. This eliminates



backlash in the clutch and gears that can delay initial rotation of the time dial by up to an hour.

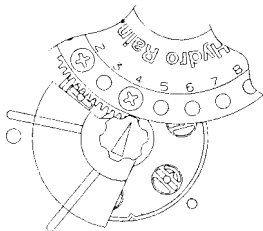
CAUTION: *Time dial rotates free/y only in counterclockwise direction. DO NOT FORCE DIAL CLOCK WISE.*

Setting current time and start times

Set the start time

The tripper gear lets you set your controller to begin watering at the time of day you desire every hour on the half hour. If more than one watering cycle per day is desired, you can add additional gears (up to five) to set up to six start times a day. Simply fasten the tripper gear to the time dial beneath the three hours that run clockwise from the desired start time.

IMPORTANT: *If only one start time per day is desired, install tripper gear with post on its underside. If multiple start times are desired tripper gear with post must be installed as the last start time of the day, since it will turn the skip-a-day dial advancing your schedule to the next day.*



NOTE: *The tripper gear requires three hours to cycle through all four 45-minute Stations on the HRM-4 and HRM-4i and all six 30-minute Stations on the HRM-6 and HRM-6i, regardless of the actual run times you've set or how many Stations are in use.*

Setting additional start times

To set up to five more watering start times, install additional tripper gears available from Hardie Irrigation, Customer Service, 9455 Railroad Drive, El Paso, TX 79924. You must allow one hour between the end of one watering period and the beginning of the next (four hours between start times).



Install additional tripper gears for up to 5 more start times.

Setting the run times

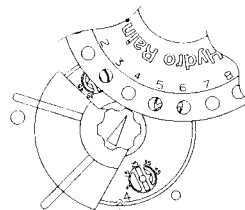
Set automatic run times

You can set each Station with its own specific run time—from 5 to 45 minutes on the HRM-4, HRM-4i and from 5 to 30 minutes on the HRM-6 and HRM-6i.

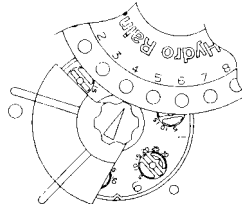
A. Place slide switch in OFF position. Rotate Station selector knob until run time selector is visible. Insert dime or screwdriver into slot in run time selector and turn to align arrow with required run time. (Run times are approximate and may vary.)

B. After setting all desired Stations, rotate Station selector knob until it clicks into position with index arrow pointing directly at time dial. Move slide switch to AUTOMATIC position.

HAM-4, HRM-4i



HRM-6, HRM-6i



NOTE: Regardless of the specific watering run time you select for a Station, your controller will wait the maximum run time setting possible before watering will begin in the next consecutive Station. For example, if you select a run time of 15 minutes for Station 1, your HRM4 or HRM-4i controller will wait 30 minutes (your HRM-6 or HRM-6i 15 minutes) before watering will begin in Station 2.

Manual operations and shutoff



A. For system shutdown in case of rain or other reasons, move switch to OFF. This turns off power to valves while clock continues to keep time.

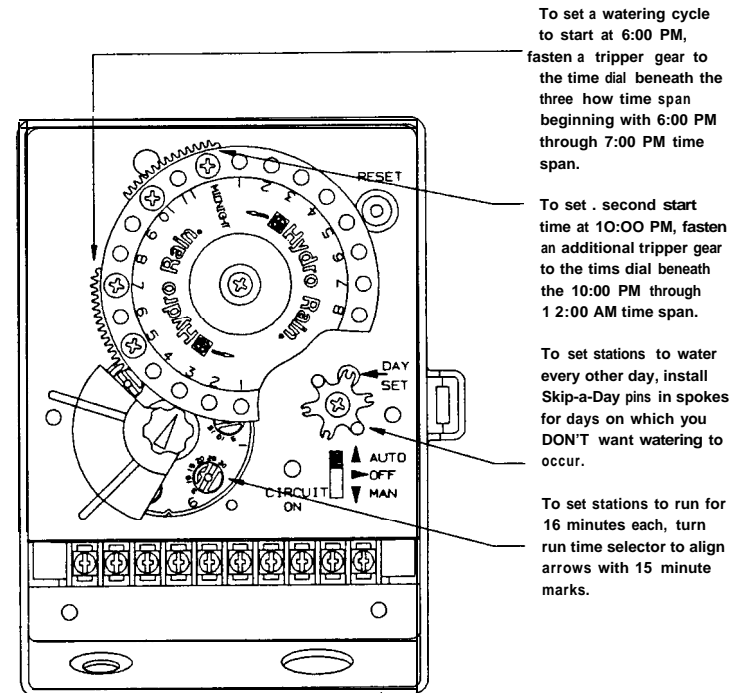
B. For manual operation, first move switch to OFF. Rotate Station selector knob until desired Station aligns with dot on chassis, then move switch to MANUAL. The Station will water and indicator light will remain on as long as controller is in manual mode. You must shut off watering manually by resetting the selector knob to another Station or switching to OFF or Automatic positions.



NOTE: After manual operation, always turn Station selector knob so index arrow points directly at time dial, then move switch to AUTOMATIC or OFF.

Typical program for lawn and garden

Here's how you might set your Hydro Rain controller to handle a watering schedule for a typical lawn and garden. Please refer to instructions on the preceding pages for programming details.



Installing a pump-start relay

To connect your controller to a well pump or master valve:

If your water *doesn't* come from the pipes of a standard public water supply, you may be using an electrically operated master valve or pump to draw directly from a well, pond, or similar source. In these cases, you'll need to make the following wiring connections so your sprinkler controller can activate the valve or pump.

- Bring two wires up through the same hole in the controller cabinet used for the valve wiring.
- Connect one wire to the terminal marked PUMP.
- Connect the second wire to the unused terminal marked COM on the HRM-4 and HRM-4i, or to the COM terminal shared with the valve common wire on the HRM-6 and HRM-6i.
- For master valve installations, connect both wires to a master valve rated at 24 VAC and a current no greater than 9 VA, as in A through C above.
- For pump start relay installations, connect the two wires to an auxiliary relay with a

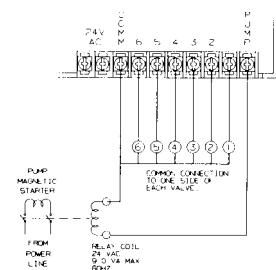
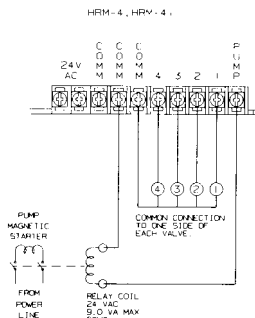
coil rated at 24 VAC and a current no greater than 9 VA. Then wire the relay's contact to supply voltage to the pump's contactor. A licensed electrician can make these connections for you. For best results, use a Hydro Rain HSR-1 Pump Starter to control a pump up to 2 HP at 240 volts.

NOTE: *The controller's pump output will turn on whenever a Station is watering manually or automatically.*

IMPORTANT: *The power transformer is protected by an electronic circuit breaker. Do not connect a combination of pump relay and valves requiring an inrush current of more than 1 AMP at 24 VAC.*

CAUTION: Stations cannot be set to "OFF"—5 minutes is the minimum run time. On unused stations, set run time to 5 minutes and place a jumper wire to an active station to prevent pump motor damage.

CAUTION: When in manual operation with a pump start relay, if the tripper gear engages the selector knob for a run cycle, pump damage may occur.



Trouble-shooting

Malfunctions aren't common, but when they occur, they're often due to one of these frequently overlooked causes.

Problem	Possible Cause
One or more valves do not water	<ol style="list-style-type: none">1. Faulty solenoids and/or valves2. Poor wire connection3. Possible break in wire4: Valve flow stem screwed down too far
Circuit breaker is tripped	<ol style="list-style-type: none">1. Faulty solenoid2. Poor or shorted wire connection
Time dial won't keep correct time	<ol style="list-style-type: none">1. Controller on circuit controlled by switch
Watering cycle starts late	<ol style="list-style-type: none">1. Less than one hour between start times
Clock has correct time but no valve will turn on	<ol style="list-style-type: none">1. Slide switch is in "OFF" position2. The common wire is not connected3. Valve/solenoid failure
One Station won't shut off electrically	<ol style="list-style-type: none">1. Station switch is in "MAN" position2. Faulty valve3. Particles of dirt or debris are stuck in valve
First or last station continues to run	<ol style="list-style-type: none">1. Station selector knob is bent out of engagement with time dial. Turn selector knob clockwise until it clicks into locked position

WARNING: Do not link two or more controllers using a common transformer or common wire.

Special functions

Turning off the system

To prevent automatic watering (for example, if rain is expected), move slide switch to OFF position. This turns off power to the valves but permits clock to continue running.

Manual watering

To water a single station at a time, first move slide switch to OFF position. Rotate zone selector knob until desired station number aligns with dot on chassis, then move switch to MANUAL position. The circuit indicator light will remain on to indicate that switch is in the MANUAL watering position. You must shut off watering manually.

Voltage Specifications

Input	output
120 VAC	24 VAC
60 HERTZ	1 AMP
37 WATTS	

1-Year Limited Warranty

LIMITED WARRANTY

Hydro Rain warrants to the purchaser of its products for a period of one (1) Year from the date of original purchase that any defective product proved to be caused by faulty workmanship or faulty materials, when installed per instructions and used in a normal manner, will be repaired or replaced at Hydro Rain's option at no charge, providing the product is received at the Hydro Rain factory or authorized factory service center with all transportation charges prepaid within one year of the date of original purchase. This warranty does not apply to damages or malfunctions resulting from accidents, misuse, or neglect. Hydro Rain will not pay labor or other costs of removal or reinstallation of any so-called defective products.

NO IMPLIED WARRANTIES (INCLUDING BUT NOT LIMITED TO) FITNESS FOR A PARTICULAR PURPOSE, WHERE APPLICABLE, AND MERCHANTABILITY SHALL EXTEND BEYOND THE PERIOD OF THE EXPRESS WARRANTY DESCRIBED ABOVE. IN NO EVENT SHALL HYDRO RAIN BE RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES TO PROPERTY WHICH MAY ARISE FROM OR RELATE TO THE PURCHASE OF ANY HYDRO RAIN PRODUCT.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so one or both of the above limitations may not apply to YOU.

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

To exercise your warranty, send unit with photocopy of dated receipt postage prepaid to:

**Hydro Rain
9455 Railroad Drive
El Paso TX 79924**

**800-231-5117
915-757-2586**

Your watering schedule

Station	Watering Days*	Run Time	Location
1			
2			
3			
4			
5			
6			

Start Times

1	
2	
3	
4	
5	
6	

* Applies only when 7-spoke dial is installed.



Hardie Irrigation

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FOR
TECHNICAL
ASSISTANCE CALL:
1-800-231-51 17
PIN 696501

9455 RAILROAD DRIVE
EL PASO, TX 79924