



RFS1224™

PROFESSIONAL IRRIGATION CONTROLLER



STATION MODELS - Available in 12, 18 or 24 stations.

INDOOR/OUTDOOR MODEL - Supplied with 120VAC x 24VAC or
240VAC x 24VAC inbuilt transformer.



INSTRUCTION MANUAL

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INTRODUCTION

RPS 1224 is available in 12, 18 & 24 station configurations. Designed to cover a wide range of applications from residential and commercial turf, to light agriculture, and professional nursery. This controller has a possible 8 separate programs with up to 64 starts per day.

The controller has a 7 day watering schedule with individual day selection per program or a 365 calendar for odd/even day watering or selectable interval watering schedules from every day to every 15th day. Individual stations can be allocated to one or all programs and can have a run time of 1 minute to 12 hours 59 minutes or 25 hours if the water budget is set to 200%..

K-Rain has always been concerned with sustainable water usage. The controller has many water saving features that can be used to maintain the highest standard of plant quality with the least amount of water consumption. The water budgeting allows global changes of run times without affecting programmed run times. This allows for decreasing total water consumption on days of minimal evaporation.

GLOSSARY

LARGE SELECTION DIAL

Navigates through all programming information

LARGE HIGH CONTRAST LCD

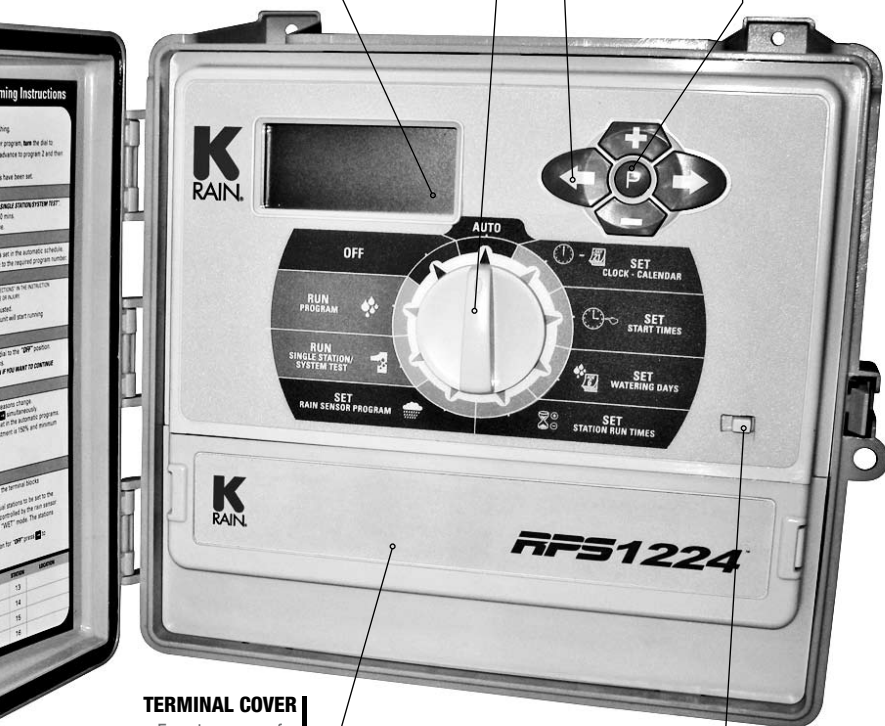
Displays all programming information

LARGE MENU BUTTONS

Easy operation with fast scroll feature for entry and review

QUICK PROGRAM SELECTION KEY

The "P" key allows faster program entry and review



TERMINAL COVER

Easy to remove for easy access

FRONT MOUNTED SENSOR SWITCH

ON/OFF switch for easy access to override

KEY FEATURES


- ▶ 12, 18 & 24 station models.
- ▶ Indoor/Outdoor model with built-in transformer.
- ▶ 8 programs, each of which has 8 start times. Maximum of 64 start times per day.
- ▶ Station run times from 1 minute to 12 hours & 59 minutes.
- ▶ Selectable watering options:
 - Individual 7 day selection.
 - Odd or Even day selection.
 - Interval watering day selection from every day to every 15th day.
- ▶ Watering budgeting feature allows quick adjustment of the station run times by percentage, from 10% to 200%.
- ▶ Rain sensor input will turn off all stations or selected stations during wet periods, if a sensor is installed.
- ▶ Permanent memory feature will retain automatic programs during power failures.
- ▶ Standard 9 volt block alkaline battery can be used to program the controller remotely and to maintain the clock.
- ▶ Manual functions:
 - Run a program or group of programs once.
 - Run a single station.
 - Run a test cycle for all stations.
 - "OFF" position, stops a watering cycle or to stop automatic programs.
- ▶ 2 Pumps or master valve inputs as standard.
- ▶ Pumps or master valve inputs can be turned off by program or by individual stations, for dual water supply situations.
- ▶ The eighth program can be set as a standard program or can be used to act as a loop program with up to 99 repeat watering cycles.

PROGRAMMING INSTRUCTIONS

INTRODUCTION

This controller has been designed with 8 separate programs to allow different landscape areas to have their own individual watering schedules. A program is a method of grouping stations (valves) with similar watering requirements to water on the same days. These stations will water in sequential order and on the days selected.

- ▶ **Group the stations** (valves) which are watering similar landscape areas together.
***Examples:** Turf, flower beds, gardens. These different groups may require individual watering schedules, or programs.*
- ▶ Plan your watering schedule completing the planner supplied at the back of this book.
- ▶ Set the current time and correct day of the week. If odd or even day watering is going to be used, make sure the current year, month and day of the month is correct.

HINT: To select a different program use the button marked . Each press will move to the next program number. This is handy for quick reviewing of previously entered information without losing your place in the programming cycle.

SET AUTOMATIC PROGRAM

- ▶ Set the automatic program for each group of stations (valves) by completing the following three steps:
 1. **Set start times**
This sets the time when the watering schedule is to commence.

NOTE: For each start time, all the stations (valves) selected for the program will come on in sequential order. If two start times are set, the stations (valves) will come on twice.

2. **Set Watering Days**
These are the selected days when the automatic system will be active.
3. **Set Station Run Times**
This sets the watering duration required for each station (valve).

PROGRAMMING INSTRUCTIONS

PROGRAMMING EXAMPLE

A typical example of a 12 station system is outlined below as a guide to assist you when planning your watering schedule. In this example only 5 of the possible 8 programs are used, the lawn areas are using gear drive sprinklers. The garden is using drip and the flower beds are being watered with micro sprays.

STN. NO	AREA	PROGRAM NO	STATION RUN TIME	WATERING START TIME(S)	WATERING DAYS
1	FRONT LAWN	1	20m	6.00 am	MON FRI
2	FRONT LAWN	1	20m		MON FRI
3	FRONT LAWN	1	20m		MON FRI
4	FLOWER BED	2	10m	8.00 pm	WED SUN
5	BACK LAWN	1	20m		MON FRI
6	BACK LAWN	1	20m		MON FRI
7	FLOWER BED	2	10m		WED SUN
8	POTS IN PERGOLA	3	5m	5.00 am 10.00 pm	EVERY SECOND DAY
9	POTS IN GREEN HOUSE	4	5m	5.00 am 10.00 pm	EVERY DAY
10	VEGETABLES	5	45m	4.00 am	TUES SAT
11	VEGETABLES	5	45m		TUES SAT
12	VEGETABLES	5	45m		TUES SAT
13					
14					
15					
16					
17					
18					





SPARE WATER PLANNER

STN. NO	AREA	PROGRAM NO	STATION RUN TIME	WATERING START TIME(S)	WATERING DAYS
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

PROGRAMMING

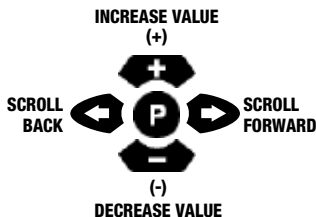
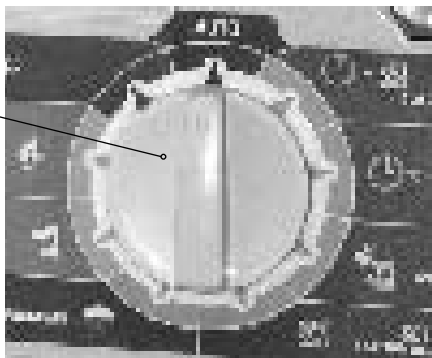
GENERAL TIPS FOR EASY PROGRAMMING


This controller has been designed for quick intuitive programming. Remember these simple tips for hassle free programming.



1. Complete the spare watering planner at the back of this book.
2. When setting, one push of the button will increment one unit.
3. Holding one button down will fast scroll through units.
4. During the programming, only flashing units are able to be set.
5. Adjust flashing units using the  or  buttons.
6. Pressing  will scroll forward through the settings in an orderly sequence.
7. Pressing  will scroll back to previous settings and setting can be changed.



The large dial is the primary device for selecting an operation.



Rotate the dial to the function you wish to alter or review.



The  is used to select different programs. Each push on this button will increment one program number.

Once you have selected the primary function and program you wish to alter, you can then use the  or  to change that function's value.



Only display elements that are flashing can be altered with the   keys.

Use the   to scroll through other values within the function that can be altered.




PROGRAMMING




SET CURRENT TIME & CORRECT DAY

Turn the dial to “Set Clock/Calendar” position.

The hour will be flashing. Use the  or  to adjust.




NOTE: AM/PM must be set correctly.

Press  button and the “minutes” will flash. Use  or  to adjust the minutes.




Press  and the “day of the week” will flash. Use  or  to set the correct day.

SET CALENDAR

NOTE: The calendar only needs to be set when selecting Odd/Even day watering in areas where water restrictions may require this feature.

Press  button until the year, month and day are shown. The “year” will be flashing. Use  or  to adjust if required.

Press  and the “month” will flash. Use  or  to adjust if required.

Press  and the “day” will flash. Use  or  to adjust if required.

HINT: To return to the clock, press  and  together or turn dial to another position.

Before proceeding, ensure the spare watering planner has been completed. From your planner, you should be aware which stations (valves) are allocated to each program. Set one program at a time to ensure that the schedules are completed correctly.

PROGRAMMING

Example: SET PROGRAM 1

STEP 1 – SET START TIMES

NOTE: All stations will come on in sequential order for each start time.

Turn the dial to “Set Start Times” and ensure that “Prog No 1” is showing. If not, then use the **P** button to select “Prog No 1”.

The “Start No” will be flashing. **THE DISPLAY WILL SHOW:**



Use **+** or **-** to change the “Start No” if required, otherwise press **▶** and the “hour” will flash. Use **+** or **-** to adjust if required.

NOTE: Ensure AM/PM position is correct.

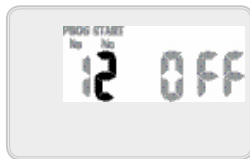
Press **▶** and the “minutes” will flash. Use **+** or **-** to adjust if required.

Each program has up to 8 start times.

Should you require a second start time, press **▶** and “Start1” will flash.

Advance to “Start2” by pressing **+**.

THE DISPLAY WILL SHOW:



Press **▶** and proceed as per setting Start 1.

HINT: To toggle a start on or off press **+** or **-** when the hour is flashing. To change to a different program either to review or alter, press the **P** button. Every press will increment to the next program.

PROGRAMMING

STEP 2 – SET WATERING DAYS

This controller has interval watering from every day to every 15th day, individual day selection or a 365 day calendar with odd/even day selection in areas where water restrictions require this feature.

INDIVIDUAL DAY SELECTION

Turn the dial to “Set Watering days” and ensure that “Prog No 1” is showing. If not, then use the **P** button to select “Prog No 1”.

“Monday” will be flashing. **THE DISPLAY WILL SHOW:**

This refers to Mon being Day 1.



To turn Monday off press the **⏏** button. To turn it back on press the **⏏+** button. To advance to the next day and set it use the **▶** button, the display will then flash Tue and Day 2. Use **⏏+** or **⏏** to turn days ON or OFF and advance to the next day using **▶**. Remember to set all 7 days ON or OFF.

ODD/EVEN DAY SELECTION (OPTIONAL)

In some areas users are only allowed to water their landscapes on **odd** dates if their house number is **odd**, or **even** dates when their house number is **even**.

This controller allows this to be done simply by setting the relevant selection of odd or even and setting the current date into the controller. The controller will account for leap years.


If you require the odd/even day option, simply press the **▶** button until “Odd” is shown. Press the **▶** button and “Even” will be shown.

This feature may be required in areas where water restrictions are enforced.

Note: Remember to set the 365 day calendar when setting the clock, or this feature will be out of sequence (refer page 8 “set calendar”).



PROGRAMMING

INTERVAL DAY SELECTION

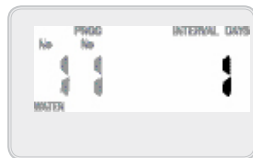
Press the  button until the “interval days” is flashing.

THE DISPLAY WILL SHOW:

“Interval 1” will be flashing. This means the controller will water every day. The display will show how many days are left before an active schedule.

For example, if it showed “1” then in one day’s time the controller will run this program. To change the interval day, press the  or  button.

Select from 1 to 15 interval days.



NOTE: When changing the interval day, the next active day is always changed to 1. This means that tomorrow is the first active day to run.

STEP 3 – STATION RUN TIMES

This is the length of time that each station (valve) is scheduled to water on a particular program. Maximum watering time is 12 hours 59 minutes for each station.

A station can be assigned to any or all of the possible 8 programs, if required.

Turn the dial to the “Set Station Run Times” position.






THE DISPLAY WILL SHOW:




NOTE: This means that station 1 of program 1 has no run time programmed in it. The controller has permanent memory so when the device is first used there will be no run times set. Unlike other controllers, when there is a power failure, even if the battery is not installed, the programmed values will be restored to the unit.









PROGRAMMING

STEP 3 - STATION RUN TIMES (CONT.)

Press  or  button to select the station (valve) number, and press the  button and the run time minutes will flash. Alter by using  or .



Press the  button and the run time hours will flash. Alter by using  or .

Press the  button and the current station will flash. Select the next station to change by using  or  and proceed by pressing  and alter using  or .

Continue until all the stations in Program1 have been set with a run time, or if a station(s) is not required to be active in this particular program, ensure that the run time is set to "OFF".

NOTE: To turn a station "OFF" press the  and  at the same time when the station number is flashing or use  to set minutes to 00 when flashing.

This completes the setting up procedure for automatic program 1.

Select from up to 8 programs using the  button for different watering schedules. On every press of the  button the program number will increment. Once on the desired number, follow the three steps to set an automated program:

1. Set Start Times.
2. Set Watering Days.
3. Set Station Run Times.

TIP: Although the controller will run automatic programs with the main dial in any position (with the exception of "OFF"), it is advisable to leave the main dial in the "AUTO RUN" position when not programming or running manual stations or programs.




MANUAL OPERATIONS

RUN A SINGLE STATION


The maximum run time for a station is 12 hours 59 minutes. To manually run a single station once, turn the dial to the “System Test or Run Single Station” position.

THE DISPLAY WILL SHOW:





The default run time for a single station is 10 minutes.

Advance to the selected station by pressing  as many times as required, and adjust the run time with  or .



The controller will start running the selected station and display the remaining run time.

If there is an active pump set for this station, the pump icon will flash once the  button has been pressed, indicating that the pump/master is running. As soon as the single station run time has elapsed, the unit will revert back to automatic mode. This means that if you forget to turn the dial back to the “Run” position, the controller will still run its automatic starts, as scheduled. To turn the station off, change the position of the main dial, to “OFF”.






HINT: If you wish to alter the default value from 10 mins to some other value and set this as the new default time, turn the dial to “Run Single Station” and press the  button. Then, alter the run time using the  or  buttons. Once the new default time is set, press the  button again, and the new default will now always appear when you select a “manual single station”.

RUN A SYSTEM TEST

To manually run a system test, turn the dial to the “System Test or Run Single Station” position, press  and  together.



THE DISPLAY WILL SHOW:







The default run time for a single station is 2 minutes. If you wish to alter the run time for **this start only**, use the  or  buttons. Once the correct run time has been entered, turn the station on and make it run by pressing the .



MANUAL OPERATIONS

The controller will start running all stations with the selected run time. The time will decrease in the display and will sequentially move through all stations, running them for the same set period of time. This option is designed so that it is possible to test all sprinklers and valves that make up the irrigation design.

To skip to the next station press the  button. To go back a station press the  button. To stop the system test, change the position of the main dial, to “OFF”.

HINT: If you wish to alter the default value from 2 mins to some other value and set this as the new default time, press the  and  together followed by  button. Then alter the run time using the  or  buttons. Once the new default time is set, press the  button again, and the new default will now always appear when you select a “manual system test”.

RUN A PROGRAM


To manually run a complete program or to stack multiple programs to run, rotate the dial to “Run Program”. The word “OFF” will be flashing.

THE DISPLAY WILL SHOW:

To enable program 1 to start press the  button.

The icon “OFF” will change to “ON”.

This program has now been enabled so that it can be run.

To make program 1 run, press the  button.





NOTE: So long as there are run times in program 1, then program 1 will start and water the stations associated with it.

MANUAL OPERATIONS


There may be times when it is desirable to run more than one program manually.

The controller allows this to occur by stacking programs. For example if I wished to run Program 1 and also Program 2, the controller will manage stacking of the programs so they do not overlap.

Enable program 1 by pressing the  button. To select the next program press the  button, the program number will increment to program 2.

Enable program 2 to run by pressing the  button.

NOTE: to disable a program number, press the  button.

Once both programs have been enabled, they can be run by pressing the  button.

The controller will now run all programs that have been enabled starting with the highest numbered program. So in this case, program 2 would run and when it has completed its cycle, program 1 would start and run its cycle.

This method can be used to enable any, or all of the available programs on the controller.

NOTE: When running programs in manual mode the “Budget %” will alter the running times of each individual station.

OTHER FEATURES

STOP WATERING

To stop an automatic or manual watering schedule, turn the dial to the “OFF” position.

NOTE: For automatic watering remember to turn the dial back to the “Auto Run” position, as “OFF” will stop any future watering cycles from occurring.

STACKING START TIMES

Should you accidentally set the same watering start time on more than one program, the controller will “stack” them in sequential order. All programmed start times will be watered from the highest number first.

AUTOMATIC BACKUP

This product is fitted with permanent memory. This allows the controller to hold all stored values even in the absence of power sources, which means that programmed information will never be lost. Use of the 9 volt block battery will keep the real time clock running during power outages. However, the real time clock is backed up every 10 minutes to the non volatile memory should the battery be disconnected or drained. This means that when the power returns the clock will be restored to its last known value.

It is recommended that a battery be installed and changed every 12 months.

A low battery icon will light indicating battery change is needed. When this occurs, replace the battery as soon as possible so that the clock is maintained correctly during power failures.

OTHER FEATURES

RAIN SENSOR

When installing a rain sensor, first remove the the factory fitted link between the **"C"** and **"S"** terminals shown here.

Replace link with the two wires from the rain sensor into these terminals, polarity NOT required. Move the rain sensor switch on the fascia to **"ON"**.



Turn the dial to **"Set Auxiliaries"** to enable individual stations to be set rain sensor **"ON"** or **"OFF"**.

THE DISPLAY WILL SHOW:




If a station is turned **"ON"** this means that the sensor will control it, should it rain. The default mode is for all stations to be rain sensor **"ON"**. Should you have a station (valve) that always needs to be watered, e.g. an enclosed green house or plants that are under cover, then the rain sensor can be turned **"OFF"** for these particular stations. This way when the sensor is wet they will still water. To select a station to turn **"OFF"** press the button, the word **"ON"** will now be flashing, use the button to change to **"OFF"**.

TIP: To turn the station back **"ON"** press the button. To advance to the next station use the button and the station number will increase. Do this operation for all stations (valves) on the controller that need to be altered.


HINT: To disable the rain sensor and allow all stations to water regardless of the setting, move the slide switch marked Rain/Sensor to the **"OFF"** position. The reactivate it slide the switch to the **"ON"** position.

OTHER FEATURES

RAIN DELAY (RAIN SENSOR CONT.)

Different rain sensors react in different ways. The most common complaint about rain sensors is that they dry out too quickly and allow the system to come on within hours of a rain event. To counter this problem the controller has a “*Rain Delay*” setting that allows a specific delay time to elapse after the rain switch has dried out before the controller will water again. Turn the dial to the “*Set Auxiliaries*” position. Then press the  button. The rain delay value will now be flashing.

THE DISPLAY WILL SHOW:

Press the  button to alter the rain delay time in increments of 12 hours at a time.

A maximum delay of 240 hours or 10 days can be set.



STOP ALL WATERING

To stop all watering cycles during winter, turn the dial to the “*OFF*” position.

The display will show “*ALL OFF*”:

This means that all automatic schedules will not come on, but the programmed information is still retained in the memory and the clock still keeps track of time even though it is no longer being displayed.

To reactivate watering, turn the dial to the “*Auto Run*” position.



OTHER FEATURES

WATER BUDGETING & SEASONAL ADJUSTMENT

The automatic station run times can be adjusted by percentage as the seasons change. This will save valuable water as the run times can be adjusted quickly in spring, summer and fall to reduce or increase water usage.

Ensure the dial is in the “Auto Run” position.



Press the  button.

THE DISPLAY WILL SHOW:



This means that the run times are set to 100%, i.e. if station 1 is set to 10 minutes then it will run for 10 minutes. Should, however, the value change to say 50%, then instead of running for 10 minutes station 1 would now run for 50% of 10 minutes, i.e. 5 minutes.

Conversely, should the budget value be altered to show 200%, then instead of running 10 minutes on station 1, it would run for 20 minutes. The budget calculation is applied to all stations and all run times that are active.

To increase the budget percentage press the , to decrease the budget percentage press the . The percentage value will increase or decrease in multiples of 10%. The maximum value is 200% and the minimum value is 10%.

To return to the clock display press the  button.

Should the budget value no longer be 100% then it will be shown in the clock display, e.g. if we set the budget to 200%.

THE DISPLAY WILL SHOW:



SPECIAL FUNCTIONS

PUMP ON/OFF SELECTION

In most systems the water supply will be from a well or from a main. This controller will turn on either a pump (well supply) or master valve (main supply) each time an automatic or manual start occurs. Normally the pump or master valve is activated for all stations. However if there is a dual water supply or some of the stations may be used to run garden lights, the pump master valve input may need to be turned off for selected stations. Pumps can be assigned to be activated by a program or alternatively by individual stations, not both. The standard default is that all programs are set to pump “ON”.

To set pumps per program:

Turn the dial to “Set Auxiliaries”. Press the **P** button once.

THE DISPLAY WILL SHOW:

This means we are in the pump program menu for Pump No 1. Press the **➡** button to enter this menu option. Program 1 will now be flashing.

THE DISPLAY WILL SHOW:

This means that the pump will turn on when program 1 is running.

To select a different program number press the **+** or the **-** button. To turn a pump ON or OFF for a particular program press the **➡** button so that “ON” is now flashing. Press the **+** button to turn the pump ON or press the **-** button to turn the pump OFF for that particular number. Complete this sequence for all program No’s.

To set pumps per stations:

Turn the dial to the “Set Auxiliaries” position. Press the **P** button twice and the pump per station menu will be displayed.

THE DISPLAY WILL SHOW:


This means we are in the Pump Station menu for Pump No 1. Press the **➡** button to enter this menu option.








SPECIAL FUNCTIONS

Station No 1 will now be flashing and it will be OFF.

THE DISPLAY WILL SHOW:

This means the pump will not turn on when station No 1 is running. To turn a pump ON or OFF for a particular station press the  button so that "OFF" is now flashing.


Press the  button to turn the pump ON or press the  button to turn the pump OFF for that particular station number. Complete this sequence for all station No's by pressing  and adjust "ON" or "OFF" with the  or  buttons.




PUMP NO 2 SELECTION

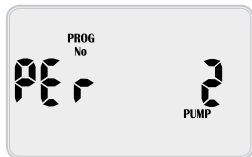
The **RPS 1224** Controller comes with a second pump / master option.

To set Pump No 2 program:






Turn the dial to "Set Auxiliaries". Press the  button 3 times.

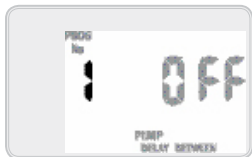
THE DISPLAY WILL SHOW:

This means we are in the pump No 2 program menu for Pump No 2. Press the  button to enter this menu option. Program 1 will now be flashing.



THE DISPLAY WILL SHOW:

This means that Pump No 2 will not turn on when program 1 is running. To select a different program number press the  or the  button. To turn a pump ON or OFF for a particular program press the  button so that the "OFF" is now flashing. Press the  button to turn Pump No 2 ON or press the  button to turn Pump No 2 OFF for that particular number. Complete this sequence for all program No's.



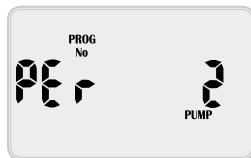
SPECIAL FUNCTIONS

To set Pump No 2 per stations:

Turn the dial to “Set Auxiliaries”. Press the **P** button 4 times.

THE DISPLAY WILL SHOW:

This means we are in the pump per stations menu for Pump No 2. Press the **➡** button to enter this menu option. Station 1 will now be flashing.



THE DISPLAY WILL SHOW:

This means that Pump No 2 will not turn on when station No 1 is running. To turn Pump No 2 ON or OFF for a particular station press the **➡** button so that the “OFF” is now flashing. Press the **+** button to turn Pump No 2 ON or press the **-** button to turn Pump No 2 OFF for that particular station number. Complete this sequence for all station No’s by pressing **➡** and adjust “ON” or “OFF” with the **+** or **-** buttons. Complete this sequence for all station No’s.



PRESSURE BUILD

The pressure build system is used to allow the recovery of water supplies and to speed up slow valve changes within a system.

Basically what happens is, as the controller changes from one valve to another, a system delay is inserted between valves. In essence, during this delay period, the pump is working against a closed head. The advantage of this is that in systems where the valves are slow to change, it is possible to speed them up by inserting a delay period and pressurizing the main line. This system can also be used on wells, where draw down can occur or cavitation of centrical pumps is a problem.

WARNING: This option is used to make pumps work against a closed heads. This can lead to pump failure, pipe splitting and in some cases, explosion of pressure vessels. Understand how to use this option and consult a hydraulic engineer regarding the use of this option in your system before implementing it.

To access the pressure build option, turn the dial to the “Set Auxiliaries” position, press the **P** button until the following display appears.


SPECIAL FUNCTIONS

THE DISPLAY WILL SHOW:

Press the  or the  buttons to increase or decrease the program number.



NOTE: Each program can have its own pressure build time programmed.

To alter the time press the  button. The delay time is set to "OFF" and will now flash for the selected program number.


Use the  or  buttons to increase or decrease the delay time seconds.

This value can be anything from OFF to 99 seconds.

WATER HAMMER SAVER

The water hammer saver is used to stop fast valve closures causing water hammer and damaging pumps and pipe work. This feature allows the overlap of valves for a specified time between valve changes. For example the system is changing from valve one to valve two.

1. Valve one is open.
2. Valve two opens.
3. Time delay counts down.
4. When time elapses valve one closes.
5. Valve two now runs for its specified run time.

To access the water hammer feature, turn the dial to the "Set Auxiliaries" position. Then press the  button till the following display appears.


Program No 1 will be flashing.

THE DISPLAY WILL SHOW:

Press the  or  buttons to increase or decrease the program number.



NOTE: Each program can have its own delay time programmed.

To alter the water hammer delay time press the  button. The delay time is set to "OFF" and will now flash for the selected program number.

Use the  or  buttons to increase or decrease the delay time seconds.

This value can be anything from OFF to 99 seconds.

SPECIAL FUNCTIONS

LOOPING PROGRAM FOR RPS 1224

The looping feature allows for the highest program in the unit to be used for looping. The looping program can be set in Hours/Minutes or in Minutes/Seconds. A delay time can be programmed between loops, and the number of loops can also be programmed. When in concurrent mode the looping station runs at the same time as an overlapping program.

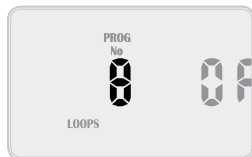
Before setting your looping routine it is necessary to program a start time, set watering days and station run times in program 8. This program records the looping program.

NOTE: The run time at this point can only be set in Hours/Minutes, and this will automatically convert to Minutes/Seconds if this option is selected when setting up the looping routine in the “Auxiliaries” position.

To set the looping routine turn the dial to the “Set Auxiliaries” position.

Press the **P** button six times until the following appears:

NOTE: If the “OFF” icon is not flashing then there is no run time set for the program and it will not let you proceed.
Set the run times before setting the looping program.



To enable the looping program press the **+** button, the display will show “ON”.


To disable the looping program press the **-** button, the display will show “OFF”.

Standard looping:

Standard looping is generally used for greenhouse and nursery applications, and is also suitable for new turf installations.

SPECIAL FUNCTIONS



LOOPING PROGRAM FOR RPS 1224




Once the looping program is enabled it is possible to gain access to its menu by pressing the  button. The No of loops will be flashing.







THE DISPLAY WILL SHOW:






Select from 1 to 99 loops.

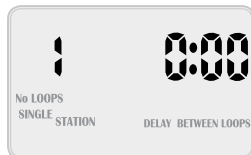
To alter the number of loops that will occur use the

 button to increase the number of loops or the  button to decrease the number of loops.

To alter the delay time between loops press the  button and the hours of the delay time will flash. Press the  button to increase the delay hours or the  button to decrease the delay hours.

To alter the delay between loops press the  button, the minutes of the delay time will now be flashing. Use the  or the  to increase or decrease the delay minutes. Press the  button again and the “SINGLE STATION” icon will flash. This means that the looping will take control of the programs and only allow them to run in the delay time between loops. If you would prefer to run in “MULTI STATION” (concurrent) mode press the  button. To return to exclusive mode press the  button.

Press the  button and the “MIN” icon will flash. This means that the Station run times will run Hours and Minutes. To run in Minutes and Seconds press the  button and the icon will show “SECS” flashing. For example if station had 12 hours 59 minutes programmed as it's run time in the looping program, then in Min/Sec mode this would be converted to 12 minutes 59 seconds. To change the setting to Hours/Mins press the  button. To set it back to Mins/Secs press the  button. This completes the steps required to set the looping program. To exit the menu either turn the dial or press the  button.



INSTALLATION INSTRUCTIONS

MOUNTING THE CONTROLLER

Install the controller near a 120VAC outlet. For ease of operation, eye level placement is recommended. Ideally, your controller location should not be exposed to rain or areas prone to flooding or heavy water.

Inbuilt model:

The controller unit is an **outdoor** model and can be exposed to light rain as it is weather proof. Fasten the controller using screws positioned externally on the top left and right. Additional holes are positioned internally under the terminal cover.

ELECTRICAL HOOK-UP

WARNING:

1. All electrical work must be carried out in accordance with these instructions following all applicable local, state and federal codes pertaining to the country of installation. Failure to do so will void the controller's warranty.
2. Disconnect power supply before any maintenance work to the controller or valves is undertaken.
3. ***Do not attempt to wire any high voltage items yourself, i.e. pumps and pump contactors or hard wiring the controller power supply. This should be done by a licensed electrician. Serious injury or death could result from improper hook up. If in doubt consult your local codes as to what is required.***

FIELD WIRING CONNECTIONS

PREPARATION

1. Prepare wire for hook-up by cutting the wires to the correct length and stripping approximately 0.25 inches (6.0mm) of insulation from the end to be connected to the controller.
2. Ensure terminal block screws are loosened sufficiently to permit easy access for wire ends. Insert stripped wire ends into the clamp aperture and tighten screws. Do not over tighten as this may damage the terminal block.
3. A maximum of 0.75 Amps may be supplied by any output. Check the inrush current of your solenoid coils before connecting more than two valves to any one station.

INSTALLATION INSTRUCTIONS

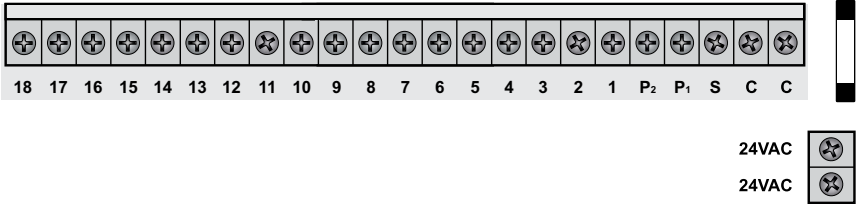
POWER SUPPLY CONNECTIONS

It is recommended that the transformer is not connected to a 120VAC supply which is also servicing or supplying motors (i.e. air conditioners, pool pumps, refrigerators). Lighting circuits are suitable as power sources.

This controller is suitable for outdoor installation as the housing is weathertight and UV stabilized. However it is recommended that the unit be installed in an area which is not exposed directly to the weather.

Terminal Block Layout (18 station example)

USE ONLY 1 AMP FUSE M-205



GLOSSARY

24 VAC	24VAC power supply connection
C	Common wire connection to field wiring
S	Sensor input for rain switch
P1 P2	Master valve or pump 1 and 2
ST1-ST18	Station(s) (valves) field connections

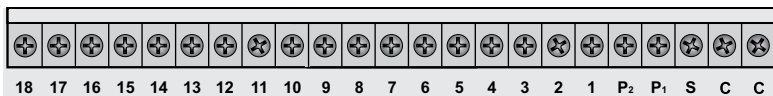
INSTALLATION INSTRUCTIONS

TERMINAL BLOCK (24)

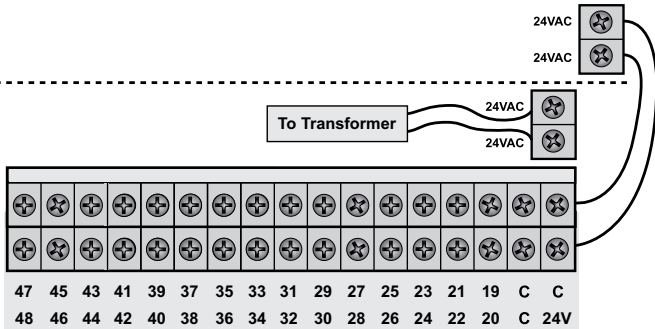
The terminal block for the 24 station model is fitted to the base of the controller housing and is connected to the top panel via a ribbon cable. To get access to the terminal block remove the top panel from the controller housing by unscrewing the two screws in the lower corners. (Both ends of the terminal block).

TOP BOARD

USE ONLY 1 AMP FUSE M-205



BOTTOM BOARD



PUMP START RELAY CONNECTION (WATER SUPPLY BY PUMP SYSTEM)

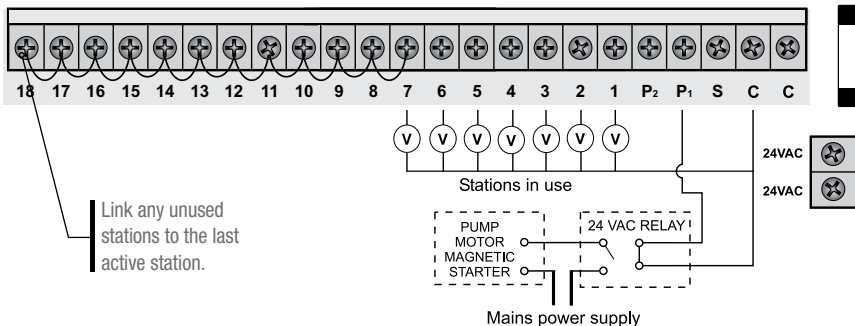
This controller does not provide power to drive a pump. A pump must be driven via an external relay and contactor setup as detailed below. The controller provides a low voltage signal that actuates the relay which in turn enables the contactor and finally the pump.

HINT: Although the controller has permanent memory and thus a default program will not cause erroneous valve actuation as in some controllers, it is still good practice when using a system where the water supply comes from a pump to connect unused stations on the unit back to the last used station. This in effect, inhibits the chances of the pump ever running against a closed head.

INSTALLATION INSTRUCTIONS

PUMP INSTALLATION

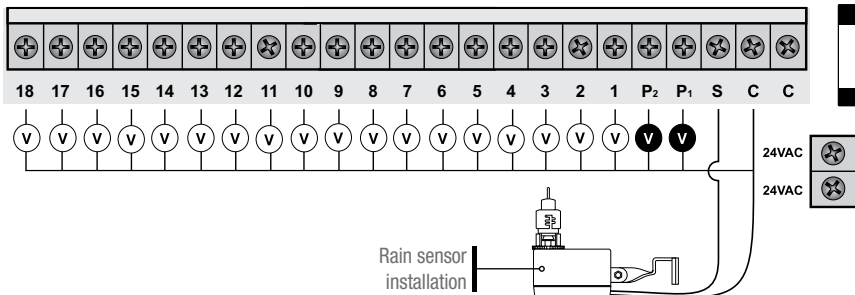
USE ONLY 1 AMP FUSE M-205



MASTER VALVE INSTALLATION

The purpose of the master valve is to shut off the water supply to the irrigation system when there is a faulty valve or none of the stations are operating correctly. It's used like a back-up valve or fail safe device and is installed at the start of the irrigation system where it is connected to the water supply line.

USE ONLY 1 AMP FUSE M-205



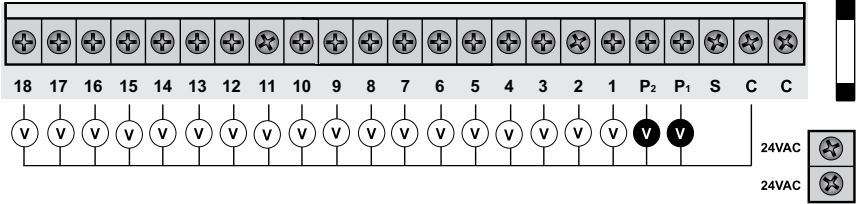
INSTALLATION INSTRUCTIONS

STATION VALVE INSTALLATION

Up to three 24 vac solenoid valves can be connected to each station output and wired back to the Common (COM) connector. When using long runs of cables, be aware that voltage drop can play a significant roll, especially when more than one coil is wired to a single station.

When you are using multiple valves per station the common wire needs to be much larger as it needs to carry more current. When making connections in the field, only use gel filled or greased filled connectors. Most field failures occur due to poor connections. The better the connection here, and the better the waterproof seal the longer the system will perform without trouble.

USE ONLY 1 AMP FUSE M-205



INSTALLATION INSTRUCTIONS

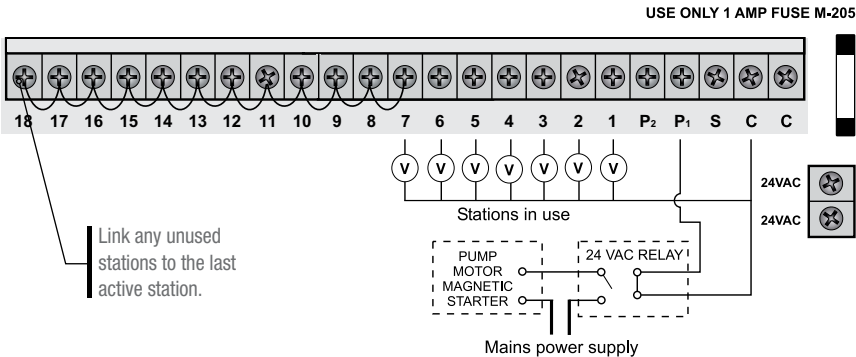
PUMP PROTECTION (SYSTEM TEST)

In some circumstances not all operational stations might be hooked up. For example, if the controller was capable of running 18 stations but there were only 7 field wires and solenoid valves available for connection. This situation can pose a risk to a pump when the system test routine for the controller is initiated.

The system test routine sequences through all available stations on the controller. In the above example this would mean stations 8 through 18 would become active and would cause the pump to operate against a closed head. This could possibly cause permanent pump, pipe and pressure vessel damage.

It is mandatory if the system test routine is going to be used, that all unused, spare stations, should be linked together and then looped to the last working station with a valve on it.

Using the above example, the connector block should be wired as per the diagram below.



TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	SUGGESTION
No display.	Faulty transformer or blown fuse.	Check fuse, check field wiring, check transformer.
Single station not working.	Faulty solenoid coil, or break in field wire.	Check solenoid. Test field cable for continuity. Test Common cable for continuity.
Fuse blows.	Incorrect wiring or bad connection. Solenoid coil has shorted.	Check solenoid. Test field cable for continuity. Test Common cable for continuity. Test connections.
No automatic start.	Programming error or blown fuse or transformer.	If unit works manually then check the programming. If not then check the fuse, wiring and transformer.
Buttons not responding.	Short on button or programming not correct.	Check instruction book to ensure programming is correct. If buttons still not responding then return panel to supplier or manufacturer.
System coming on at random.	Too many start times entered on automatic programs.	Check number of start times entered on each program. All stations will run once for every start. If fault persists return panel to supplier.

TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	SUGGESTION
More than one station coming on at once.	Possible faulty driver triac.	Check wiring and swap faulty station wire's on the controller terminal block with known working stations. If the same outputs are still locked on, return panel to supplier or manufacturer.
Display cracked or missing segments.	Display damaged during transportation.	Return panel to supplier or manufacturer.
Sensor input not working.	Sensor enable switch in the OFF position or faulty wiring.	Slide switch on front panel to the ON position, test all wiring and make sure the sensor is a normally closed type. Check programming to make sure sensor is enabled.
Pump not working on a specific station or program.	Programming error with pump enable routine.	Check programming, using the manual as a reference and correct mistakes.

ELECTRICAL CHARACTERISTICS

ELECTRICAL OUTPUTS

POWER SUPPLY

This unit runs off a 120VAC 60 Hz single phase circuit.

The internal transformer reduces the 120VAC to an extra low voltage supply of 24VAC. The internal transformer is fully compliant with AS/NZS 61558-2-6 and has been independently tested and judged to comply.

ELECTRICAL POWER SUPPLY: Input 24 volts 50/60Hz

ELECTRICAL OUTPUTS: Maximum of 1.0 amp

To solenoid valves:

24 vac 50/60Hz 0.75 amps max

***NOTE:** Up to 3 valves per station*

To the master valve/pump start:

24 vac 0.25 amps max

***NOTE:** Transformer and fuse capacity must be compatible with output requirements.*

OVERLOAD PROTECTION:

Standard 20mm M-205 1 amp fast blow glass fuse.

POWER FAILURE:

The controller has permanent memory so the data is always backed up even with the absence of all power, however to maintain the real time clock as current, a 9 volt battery should be installed. This will keep the clock time for extended periods without power.

WIRING:

The output circuits should be installed and protected in accordance with wiring code for your location.

SERVICING THE CONTROLLER

SERVICING THE CONTROLLER

The controller should always be serviced by an authorized agent.

Follow these simple steps to return the unit:

1. Turn the power OFF to the controller.
 - a) If the controller is hardwired, a qualified electrician will be required to remove the entire unit depending on the fault.
 - b) Proceed to either unplug and return the entire controller with transformer or disconnect the panel assembly only for servicing or repair.
2. Disconnect the 24 VAC leads at the controller 24 VAC terminals.
3. Clearly mark or identify all valve wires according to the terminals they are connected to. This allows you to easily wire them back to the controller, maintaining your valve watering scheme.
4. Disconnect valve wires from the terminal block.

Top Panel

5. a) Remove the complete panel from the controller housing by unscrewing the two screws in the lower corners (both ends of the terminal block).

Bottom Panel

- b) Remove the complete controller from the wall unplugging the lead.
 - c) Disconnect the ribbon cable from the top panel. Unscrew the four screws in the corners of the terminal block and remove.
6. Carefully wrap the panel, terminal block or controller in protective wrapping and pack in a suitable box and return to your service agent or the manufacturer.

NOTE: *Tampering with the unit will void the warranty.*

7. Replace your controller panel by reversing this procedure.

The controller should always be serviced by an authorized agent.

SPARE WATERING PLANNER

STN. NO	AREA	PROGRAM NO	STATION RUN TIME	WATERING START TIME(S)	WATERING DAYS
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

SPARE WATERING PLANNER

STN.NO	AREA	PROGRAM NO	STATION RUN TIME	WATERING START TIME(S)	WATERING DAYS
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
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24					

WARRANTY

The manufacturer guarantees to the original purchaser that any product supplied by the manufacturer will be free from defects in materials and workmanship for a period of two years from the date of purchase. Any product found to have defects in material or workmanship within the period of this warranty shall be repaired or replaced by the manufacturer **FREE OF CHARGE**.

The manufacturer does not guarantee the use for a particular purpose of its products and does not make any guarantee, expressed or implied, other than the warranty contained herein. The manufacturer shall not be liable for any loss from use of the product or incidental or consequential damages including damages to other parts of any installation of which this product is part.

The warranty shall not apply to any equipment which is found to have been improperly installed, set up or used in any way not in accordance with the instructions supplied with this equipment, or to have been modified, repaired or altered in any way without the express written consent of the manufacturer. This warranty shall not apply to any batteries or accessories used in the equipment covered under this warranty or to any damage which may be caused by such batteries.

If the Controller develops a fault, the product or panel must be returned in adequate packing with:

1. A copy of your original invoice.
2. A description of any fault.

It is the purchasers responsibility to return the controller to the manufacturer or their agent by prepaid freight.



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