

# WaterSmart™

*Automatic water saver*

10, 12 & 16 STATION MODELS



## Soil Moisture Control System

**HOLMAN**  
*Innovation in Watering*

**INSTRUCTION BOOK**

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# Introduction

The **WaterSmart™** control system uses a special sensing device to monitor the moisture in the soil at a selected location then automatically cancels irrigation programs when the soil is moist enough. When the soil dries down, the sensor lets the the controller run it's next programmed irrigation cycle.

## How does the system operate?

The **WaterSmart™** control system should be programmed as any other irrigation controller. The start time(s), station run times and days of the week to water are selected and programmed.

Before a start time is activated the controller will check with the sensor to determine the soil moisture condition. If wet, it cancels the watering cycle scheduled to run.

Only 1 sensor is used to determine the garden moisture levels.

This sensor is located in a high demand part of the garden. All sensor controlled stations relate to this sensor reading & should have run times set to reflect the amount of water each station requires. Each time the sensor allows watering, the full programmed run time on each station will occur.

The "set point" of the sensor can be adjusted on the panel of the controller. When adjusted to the "wet" position the controller will allow more frequent waterings.

Watering sections are set up in the controller to provide sensor control of high water use areas such as lawns, shrubs, perennials and trees. Other sections can be set up on a normal basis to water special areas such as annuals, ferns, areas under eaves etc. which may need to be on a time scheduled basis to water independently of the sensor controller sections.

## Soil Sensor Operation

The soil sensor functions like a "fuel gauge" by responding to the moisture stored in the soil.

The sensor should be installed approx 50mm below the surface and located in a turf area that provides a dense root zone and a uniform leaf area. This is necessary for reliable control. When the sensor is moist, the green light on the controller remains on and watering of sensor controlled stations is cancelled.

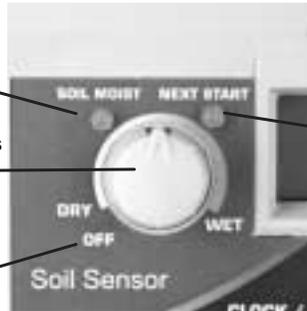
# The Sensor

## Soil Sensor Operation (cont.)

“Soil Moist”, green light will remain on, whenever the soil is moist enough

Soil moisture setting enables fine tuning of the sensor to suit the soil type and climate

Sensor OFF position reverts to time control for testing or fertilising etc.



“Next Start” amber light will come on when watering is required. The controller will then run the next scheduled watering cycle.

When the sensor is dry, the amber light comes on allowing the system to run on the next start time.

The moisture control should initially be set in the centre position then fine tuned to the right for the lighter soils and to the left for the heavier ones.

## Grouping the sensor stations

All high water use areas such as lawns, shrubs, trees etc, should be connected to the sensor controlled stations which are all those except the last four. All sensor stations should all be grouped together in program 1.

Station run times should be set as normal so that each area receives the right amount of water ( approx 10mm per start).

Start times for the sensor program should be set as often as possible because the system will automatically cancel starts when the soil is moist enough. Start times should be set for every day (except area’s with water restrictions where allowed watering days are programmed) and preferably early in the morning to minimise evaporation.

## Independent time control

The time only controlled stations for the annuals, pots & baskets, ferns, under eave areas etc. will run their scheduled starts regardless of the sensor, as they usually require watering independently of the sensor stations.

These areas should be connected to the last four stations and grouped together in different programs according to their watering needs. The example program on page 12 shows how this is may be done.

# Sensor Installation

## Soil Moisture Sensor

The sensor is constantly monitoring the soil moisture and basically provides an automatic interval control for the system.

Whilst the soil is moist enough, the sensor light is green and the sensor automatically cancels the scheduled irrigation times.

When the soil dries out to a pre-set level, the light goes to amber and the sensor permits the controller to run it’s next scheduled irrigation.

The amount of water applied to each zone can be set by it’s station run time according to it’s needs relative to those at the sensor location.

## SELECTING A TURF LOCATION

1. Always locate the sensor under turf as it has a dense root zone and uniform leaf area required for accurate sensing. Also it is least likely to be disturbed.
2. Turf location must have uniform spray from at least two sprinklers preferably three because this minimises wind effects.
3. A drier location than most other areas - This protects the drier areas as the sensor tightens the water control.
4. Avoid being too close to trees and shrubs as obstructions upset the turf water balance from the sprinklers.

## INSTALLATION DEPTH

Install the sensor at a depth of 50mm (2”) to it’s top surface which will give good results with most grasses, in most soils, but never deeper than 100mm (4”)

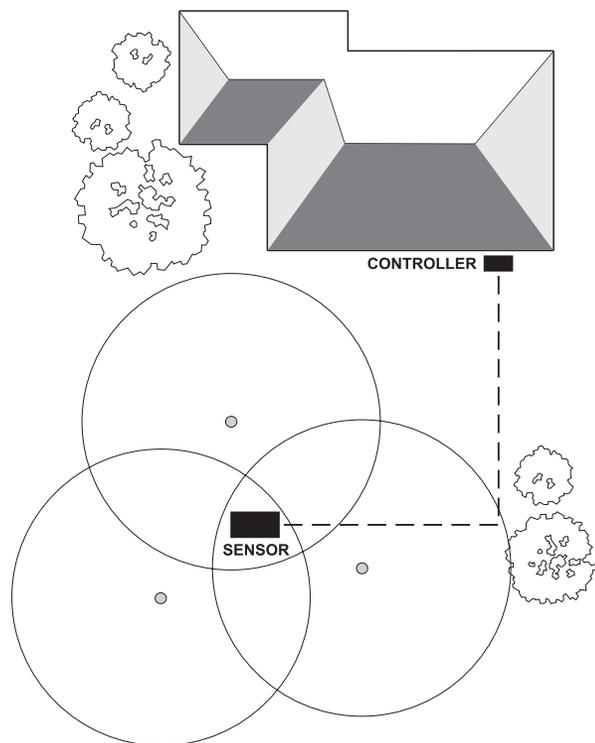
## IMPORTANT POINTS TO REMEMBER

- Take care in removing and replacing the turf sod to minimise it’s root damage. This will enable the sensor to take control quickly.
- It is important to saturate and wet tamp the area after installation to compact the soil around the sensor and roots.
- Do not install the sensor until all landscaping and planting works are completed - coil the cable in valve box until safe.

# Installation Instructions

The sensor when buried in the root zone, responds to the capillary tension which is related to the degree of moisture stress in the plant.

As the soil dries out, its tension increases and the sensor switches on - as the soil becomes wet its tension falls and the sensor switches off.



## REMEMBER TO SELECT A TURF LOCATION WHICH:

- gets uniform spray from at least two sprinklers preferably three because this minimises wind effects.
- is drier than most other areas - This protects the drier areas as the sensor tightens the water control.
- is not too close to trees & shrubs as their roots upset typical soil moisture balance and obstructions disturb the spray accuracy from sprinklers.

# Installation Steps

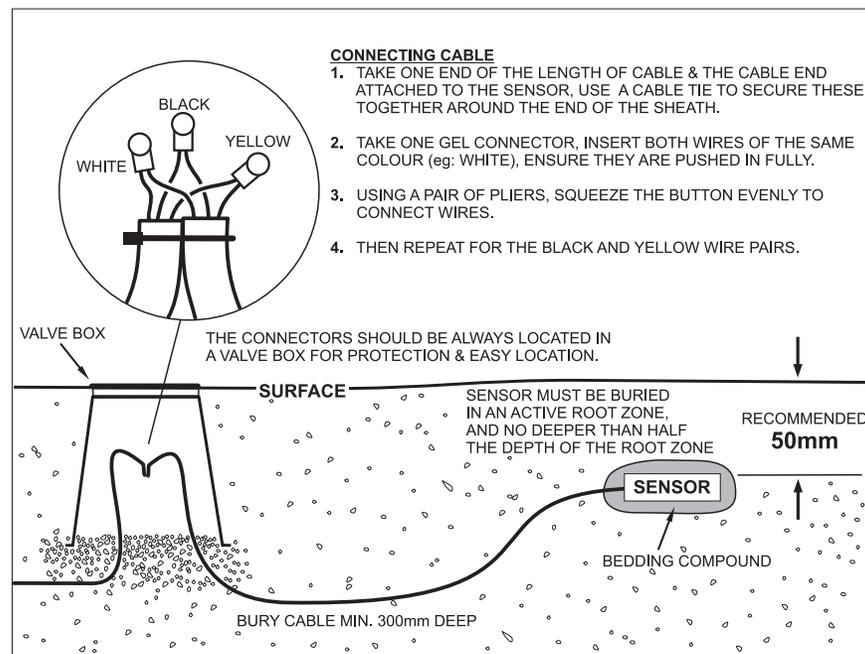
## Sensor Cable Installation & Connection

Use the supplied direct burial cable with 3 wires to connect the soil sensor to the controller.

The sensor can be up to 300 metres from the controller.

Bury the cable deep enough to prevent damage say at least 300mm (12") deep, where it is less than 200mm (8") or rises above the surface, it should be protected by conduit.

A moisture resistant connector kit is provided to make the join between sensor and connecting cable.

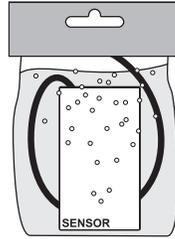


**DO NOT** install the sensor until all landscaping work is completed, coil the connecting cable in the valve box until it is safe to install the sensor.

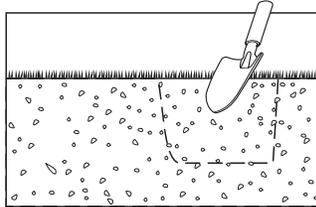
# Installation Steps

## Soil Moisture Sensor

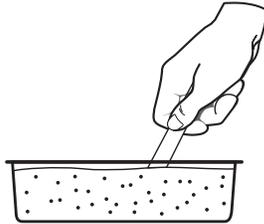
1. Pour the priming fluid into the plastic bag provided and let the sensor soak for 2 - 5 mins.



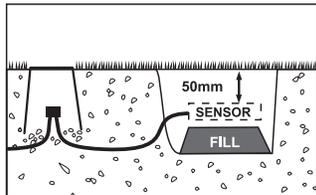
2. Using a knife or spade, cut a sod 100mm x 150mm (4" x 6") and 75mm (3") deep. Removing with minimal damage, as much of the roots as possible.



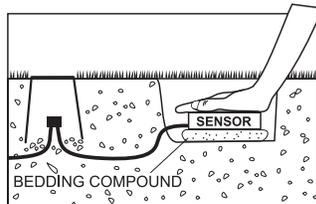
3. Using the clear tray provided, pour in ALL the bedding powder and bedding powder fluid, mix together until a smooth paste is achieved.



4. Prepare the hole by spacing the sensor to sit at it's correct height, allowing for bedding compound to go underneath. Pour enough bedding compound to create a pad for sensor to lie into, approx. 5 - 10mm thick.

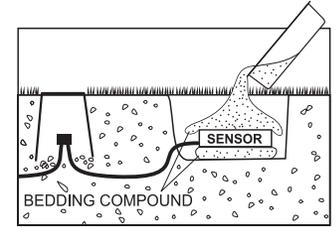


5. Remove the sensor from the priming fluid & lay the sensor on it's side, press into the compound so it stays in position.

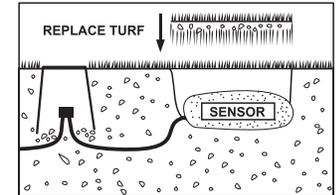


## Soil Moisture Sensor (cont.)

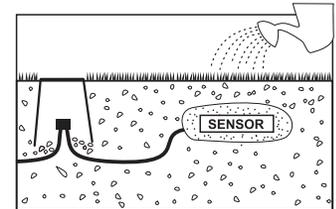
6. Pour the rest of the bedding compound on top of the sensor, encasing the sensor, then sprinkle soil over and around to cover the compound entirely.



7. Tease the roots down from the sod then position back firmly, filling any gaps with soil.



8. Tread the turf down with your foot then saturate the area thoroughly with at least 5 litres of water.



9. It is most important to revive the turf sod to allow the sensor to operate correctly. Water well & lightly pat down with the back of a spade.

Care in removing and replacing the turf sod to minimise its root damage will enable the sensor to take control quickly.

It is most important to saturate and wet tamp the area after installation to compact the soil around the sensor and roots.

# The Controller

This unit is available in ten, twelve and sixteen station configurations. Each controller has the last 4 stations that are NOT sensor controlled. Designed for residential and light commercial applications, the **WaterSmart™** has the flexibility of four individual programs with up to sixteen start times a day to ensure efficient watering of different garden or turf areas.

These different areas may require individual watering programs and often use different types of sprinklers.

Examples: Turf areas generally use pop-up sprinklers and require less frequent but heavier watering. Flower beds, however, use micro sprays and require more frequent watering. The valves (stations) which water similar garden areas are often grouped together and put into the same program as they need to be watered on the same days.

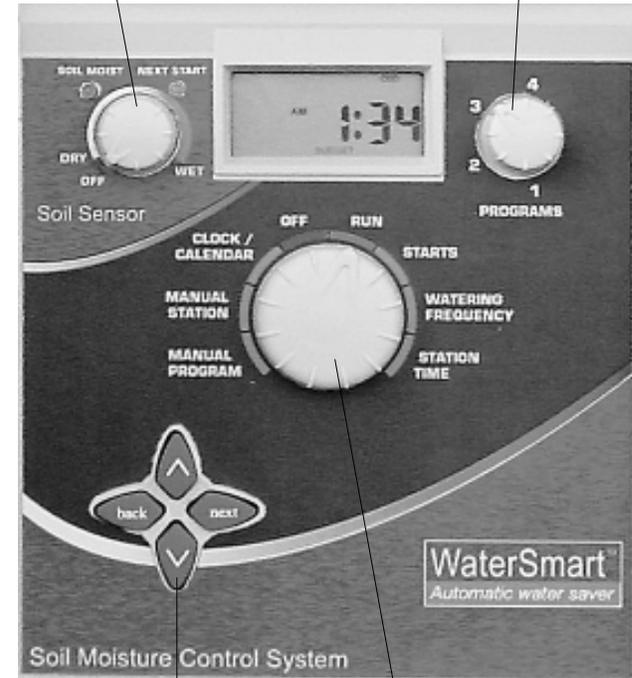
These stations (valves) will water in sequential order from the lowest number at the start time (or times) nominated and on the days selected. Maximum watering duration for a station (valve) is 255 minutes. This controller has a 7 day watering schedule with individual day selection per program or a 365 calendar for Odd/Even day watering or selectable interval watering schedules from everyday to every 15th day.

A key feature of this controller is the soil moisture sensor which takes control of the irrigation required based on the moisture in the soil. As the seasons change your garden will be watered more or less frequently according to the demand. Sensor control is available on all stations except the last 4. High water usage stations like lawn, shrubs & trees are best being used in conjunction with the sensor. Watering stations with pots, baskets, ferns & under eaves should still be watered on a time basis.

# Glossary

Soil Sensor Adjustment Control

Program Selection Dial



Programming Adjustment Buttons

Operations and Programming Selection Dial

# Programming Instructions

## Introduction

This controller has been designed with four separate programs to allow the different garden areas to have their own individual watering schedules.

A program is basically a method of grouping stations (valves) with similar watering requirements to water on the same days & same times. These stations will water in sequential order from the lowest number at the start time (or times) nominated and on the days selected.

The important elements of programming your controller are:

- All your lawn, shrubs & tree areas should be allocated to the sensor controlled stations. These areas use the vast majority of the water applied to the garden. They can all be allocated to program 1. Other areas that have very specific watering requirements can have these satisfied by using different programs utilizing different durations & frequencies of watering.
- Plan your watering schedule and write the information on the planner supplied at the back of this book.  
See the example program on page 12.
- Set the current time and correct day of the week.
- Set the automatic program for each group by completing the following 3 steps.
  - 1 START TIME.  
This sets the time when the watering schedule is to commence.
  - 2 WATERING DAYS.  
These are the nominated days when the automatic system will be active.
  - 3 STATION TIME.  
This sets the watering duration required for each station (valve).

# Programming Instructions

## Other Functions

This controller can also manually run a selected program once, or an individual station can be set to run once from 1 minute up to 255 minutes. During winter the automatic schedules can be suspended to prevent watering while it is raining. A test facility for checking the valves and sprinklers is also provided.

## Programming Example

A typical example of a 10 station system using a 10 station WaterSmart™ is included as a guide to assist you when planning your watering schedule. In this example, the lawn areas are using pop-ups, the fernery & atrium are watered with micro sprays while the pergola has drippers & shrubblers positioned in each basket & pot.

# Programming Example - 10 Station

STN NO	GARDEN AREA	PROG NO	STATION WATERING DURATION	WATERING START TIME(S)	WATERING FREQUENCY	
SENSOR CONTROLLED	1	Front Lawn	1	20 Mins	4.00am	Every Day
	2	Front Lawn	1	20 Mins		
	3	Back Lawn	1	15 Mins		
	4	Back Lawn	1	15 Mins		
	5	Flower Bed	1	25 Mins		
	6	Spare	0	0		
7	Fernery	2	2 Mins	6.30am, 12 Noon & 5.00pm	Every Day	
8	Atrium	3	5 Mins	6.45am	Every Day	
9	Pergola	4	3 Mins	7.00am & 3.00pm	Every Day	
10	Spare	0	0	0	Spare	

1. The first 5 stations are sensor controlled. They represent the large lawn & garden areas of the garden where the vast majority of the water is used.
2. These stations are set to water every day at 4.00am start. The watering time of 20 minutes applies approximately 10 mm of water per application.
3. The "Back lawn" has had the watering time reduced because it is in the shade & demand is much lower.
4. The flower bed has more water applied than the lawn.
5. Effectively the sensor will change the watering frequency on stations 1 to 5 to suit the garden demand.
6. Station 6 is not required on sensor control. It has no watering time or start times set.
7. Station 7 waters the fernery. It is set to water for 2 minutes, 3 times a day on program 2.
8. Station 8 is the Atrium & is watered each day for 5 minutes on program 3.
9. Station 9 is the pergola & is set to water for 3 minutes. 2 times per day.
10. Station 10 is spare & has no watering or start times set.

# Programming

## Set Current Time & Correct Day

Turn the **large dial** to Clock/Calendar position. The minutes will be flashing. Use  or  to adjust.

Press the **next** button and the hour will flash. Use  or  to adjust.

Note: AM/PM must be set correctly.

Press **next** and the day of the week will flash. Use  or  to set correct day.

## Set Calendar (Optional)

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

Press **back** button and the year will flash. Use  or  to adjust.

Press **back** button and the month will flash. Use  or  to adjust.

Press **back** and the day will flash. Use  or  to adjust.

# Programming

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

Example: **Set Program 1**

Turn the small dial to **Program 1** and then complete the following three steps.

## Step 1. Start Times

Turn the **large** dial to **Starts** and the display will show



“Start” will begin flashing.

Press the **next** button and the “minutes” will start flashing.

To adjust **press** **▲** or **▼**, or **press** **next** and the “hour” will flash. Use **▲** or **▼** to adjust.

Note: AM/PM position.

Note: Each program has up to four start times and should you require a second start time, **Press** **next** and “start” will flash.

Use **▲** to advance to start 2 and proceed by pressing the **next** button etc.

Tip: To Turn an active start time off, **turn** the **large** dial to **Starts** position, **Select** the start number required using **▲** and then **press** **back** and **next** simultaneously. This turns the start OFF.

# Programming

## Step 2. Watering Frequency

This unit has a seven day selection or interval watering from everyday to every 15th day or a 365 day calendar with odd/even day selection in areas where water restrictions require this feature. **Turn** the **large** dial to the **water frequency** position and the display will show:



## 7-Day Selection

This is the selectable seven day option.

This refers to program 1 and Mon being Day 1.

To turn Monday off, **press** **▼** button.

To leave Monday active, leave as is and advance to Tuesday (day 2) by **pressing** the **next** button. Again **press** the **▼** button to set the day off if required followed by **next** to advance.

Continue until all seven days have been set or **▲** or **▼** off.

To turn a day ON scroll to the required day number & **press** **▲**.

## Even/Odd Day Selection (Optional)

This feature is included because some areas have watering restrictions that limit watering to “ODD” or “EVEN” dates of the month depending on whether your house number is ODD or EVEN. Once ODD or EVEN is selected, all you require is the correct date (day, month, year) to be set & watering will always be made according to the date. The clock/date is leap year corrected.

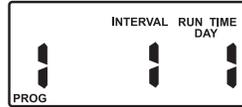
If you require the Even/Odd day option, simply **press** the **next** button and ODD will be shown. **Press** the **next** button and EVEN will be shown.

Note: Remember to set the 365 day calendar when setting the clock, or this feature will not take place.

# Programming

## Interval Day Selection

Press the **next** button and the display will show:



And the word "Interval" with a "1" will be flashing. This means that watering will occur once a day.

To change the interval day, **press** the **▲** button.

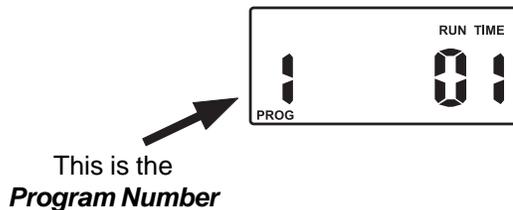
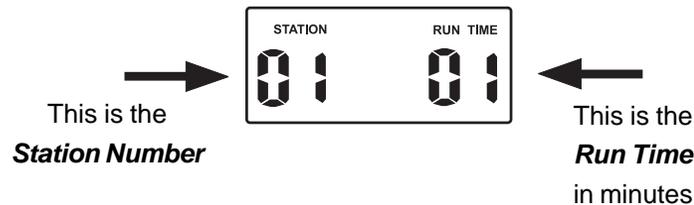
Examples: Interval 2 means watering will take place every second day, 3 means watering will take place every third day etc.

Interval watering can be set from everyday to every 15th day. The Run time day refers to the number of days before the next watering schedule will occur.

## Step 3. Station Times

This is the length of time that each station (valve) is scheduled to water on a particular program. Maximum watering time is 255 minutes for each station. A station can be assigned to 1, 2, 3 or 4 programs if required.

**Turn** the **large** dial to the **Station Time** position and the display will toggle to show:



# Programming

## Step 3. Station Times (Continued)

To adjust the Run time, use the **▲** or **▼** buttons.

Advance to Station 2 by pressing the **next** button and adjust by using **▲** or **▼**

Continue until all the stations in Program 1 have been set with a run time or if a station (or stations) is not required to be active in this particular program, ensure that the Run time is set to OFF.

Note: To set a station to OFF, either use **▼** or to adjust, quickly **press ▲ and ▼** simultaneously.

This completes the setting up procedure for automatic watering of Program 1, should you need a second program to have an automatic schedule,

**Turn** the **small** dial to **Program 2** position and follow the same 3 steps for automatic watering.

1. **Set Start Time (or Times)**
2. **Set Watering Days**
3. **Set Station Run Times**

Follow this procedure for Program 3 and Program 4 if required.

Tip: Remember to **return** the **large** dial to the **Run** position at the completion of the setting up of the automatic schedules. This will ensure that the automatic cycles will take place.

# Manual Operations

## Run A Single Station

To allow watering of sensor controlled stations first turn the soil sensor to the OFF position.

The maximum Run time for a station is 255 minutes. To manually run a single station once, **turn the large dial to *Manual Station*** position and the display will show:



To adjust the run time, use the  or  buttons and to advance a station **press** the  button.

Tip: No adjustments can be made until the : flashes

## Test the System

This feature is preset for 2 minutes per station and is not adjustable.

To allow watering of sensor controlled stations first turn the soil sensor to the OFF position.

**Turn the large dial to *Manual Station*** and the unit will start running each station for 2 minutes in sequential order, while you check your sprinklers and valves.

## Run A Program

To manually run a complete program once for the run times as set in the automatic schedule. **Turn the small dial to the program number required** and then **turn the large dial to the *Manual Program*** position.

## Stop

To stop an automatic or manual watering schedule, **turn the large dial to the *Off*** position.

Note: Remember to **turn the large dial back to the *Run*** position, as the ***Off*** position will stop any watering cycles from occurring.

# Other Features

## Rain Off Mode

To stop the automatic watering cycles during winter, **turn the large dial to the *Off*** position. The words *Rain* and *Off* will appear in the display. This means the automatic schedules will not come on, but the programmed information is still retained in the memory. To reactivate the automatic schedule, **turn the large dial back to the *Run*** position.

## Water Budgeting

The automatic station Run times can be adjusted by percentage as the seasons change. This will save time and money as the Run times can be adjusted quickly in spring, winter and autumn to reduce the amount of water used.

Ensure that the **large dial is in the *Run*** position and then **press** the  and  buttons simultaneously. The display will show the word *Budget* and *100%*. This represents the current automatic watering run times as being 100%. The percentage budget can be set in 1% or 10% increments from 1% up to 255%.

Example: 50% reduces watering by half.

To adjust in 1% increments, use  or  buttons.

To adjust in 10% increments, use the  button to reduce and the  button to increase the percentage.

To return to the clock **press** the  and  buttons simultaneously. The display will show the word *Budget* to indicate that the water budgeting feature is in use.

Note:

You may not need to use the rain off and water budget features if all stations are under sensor control.

# Other Features

## 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 from the lowest number. All programmed start times will be watered, but the start times will be shunted along.

## Automatic BackUp Program

The controller has a permanent memory facility in the micro-processor and the automatic programmed information will be retained for up to 10 years. This means that this unit will still retain the programmed information during power outs even if there is no battery fitted or if the battery is flat. The clock time is also down loaded to the permanent memory microprocessor every 10 minutes.

Note: It is important to **set the selection switch** on the back of the PCB for standard or rechargeable operation before fitting the battery. The normal position set by the factory is for standard battery operation.

A standard 9 volt alkaline block battery or rechargeable battery should be fitted to the battery snap supplied to maintain the clock during power outs.

Tip: The display has a warning indicator to let you know when the battery is low or not fitted.

## Clearing Programs

As explained previously, the controller has a permanent memory feature and the programmed information can either be adjusted during set up or it can be completely erased.

To erase all the programmed information:

**Turn the large dial** to the **Off** position and **press the**  and  buttons simultaneously. This will clear all the programmed information and preset the controller to its start up default program. This preset program is only in Program 1 and will be set to start watering all stations for 10 minutes, everyday commencing at 12.00am. All four programs would need to be re-programmed as required.

# Controller Installation Instructions

## Mounting The Controller

If required, knock out plastic press-outs on the bottom of the controller box and clean with a sharp knife.

Install the controller near a 240V AC mains outlet, preferably located in a house, garage or other covered area. For ease of operation, eye level placement is recommended. Drive a #8 screw into the wall, leaving about 4mm of the screw exposed. If necessary, use a toggle bolt or masonry shield.

## 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, or warranty will be void.
- 2 Disconnect mains power supply before maintenance work to controller or valves and when connecting and disconnecting field wiring and pump or master valve hook-ups.

## Field Wiring Connections

### PREPARATION

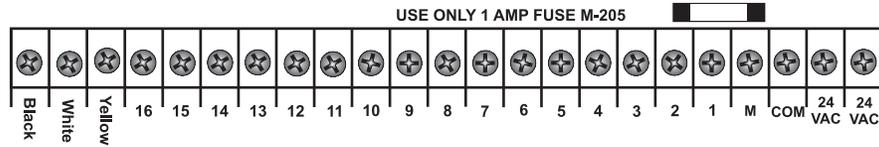
- 1 Prepare wires for hook-up by cutting the wires to the correct length and stripping approximately 6.0mm ( $\frac{1}{4}$  inch) of insulation from end to be connected to the controller.
- 2 Ensure terminal block screws are loosened sufficiently to permit easy access for wire ends. Insert stripped wire ends into the clamp aperture and tighten screws. Do not over tighten as this may damage the terminal block.
- 3 A maximum 1 Amp may be supplied by any output. Check the inrush current of your solenoid coils before connecting more than two valves, or coils to any one station.

# Installation Instructions

## Terminal Block Layout

The terminal block is laid out as follows:

EXAMPLE: 16 STATION UNIT



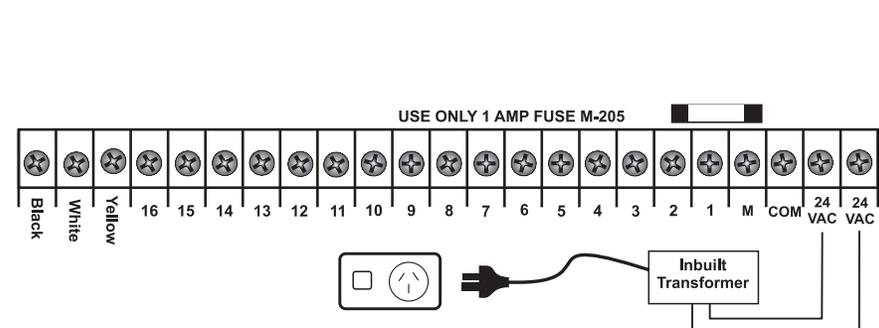
### GLOSSARY

24V	Power Supply (24 VAC)
COM	Common valve wire input
M	Master valve or pump start active wire
ST1 to ST16	Station (Valve) active wire connection
YELLOW	Sensor
WHITE	Sensor
BLACK	Sensor

## Power Supply Connections

The controller is factory wired with a 1 metre lead with plug and inbuilt transformer delivering 24 VAC at 30 VA.

It is recommended that the transformer be connected to a 240V AC supply which is not also servicing or supplying motors (eg: Air conditioners, pool pumps, refrigerators, etc.) Lighting circuits are suitable as a power source.

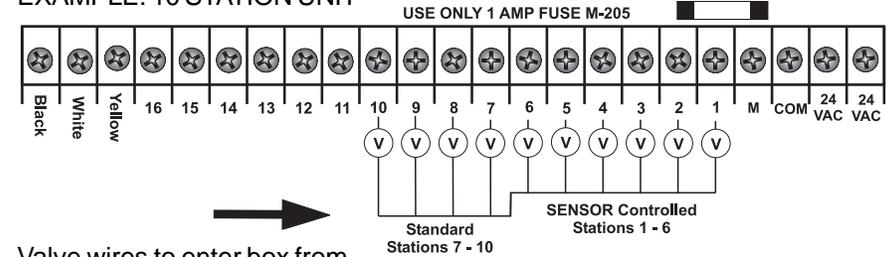


# Installation Instructions

## Connection Of Valves

Up to two 24VAC Solenoid Valves can be connected to each station output and wired back to the common (C) thus:

EXAMPLE: 10 STATION UNIT



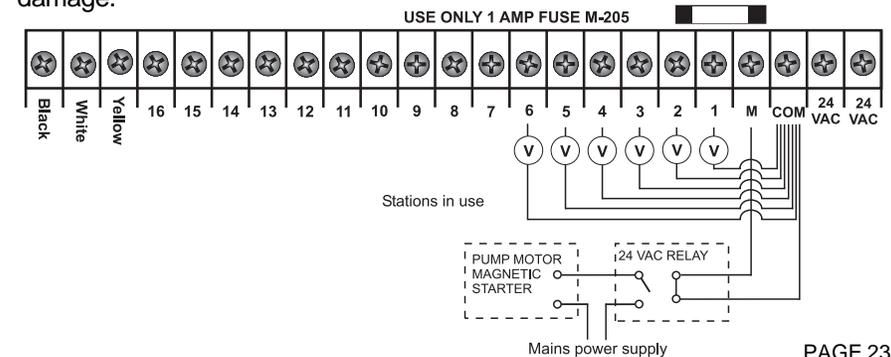
Valve wires to enter box from knock out hole or drilled hole in back of box below circuit board

NON Sensor controlled stations wired to the last 4 station  
 10 Station model, (Stations 7 - 10)  
 12 Station model, (Stations 9 - 12)  
 16 Station model, (Stations 13 - 16)

## Pump Hook-Up Connections

Do not attempt to drive a pump starter directly from the controller. Pump start is provided by connecting one side of the coil of a suitable relay to the Master Valve/Pump Start output of the controller and the other side to the controller common.

For systems supplied with water from a Pump, unused stations must be connected back to the last used station to eliminate the possibility of the pump running against a closed head. Failure to do so could lead to pump damage.



# Electrical Characteristics

## Power Supply

### MAINS SUPPLY

The unit is factory wired with a 30 VA rated Transformer 220-240 VAC (50Hz) delivering 24 VAC.

## InBuilt Transformer

The Inbuilt transformer is already wired up and comes complete with 1 metre of lead and a 3 Pin Plug which is suitable for a normal power board. Simply insert the plug and turn on the power.

With Inbuilt transformer the unit is suitable for outdoor installation as the housing is fully waterproof, however, it is recommended that the unit be installed in an area which is not exposed directly to the weather such as under the eaves or a verandah.

## Electrical Outputs

### ELECTRICAL POWER SUPPLY

- Input: 24Volts AC 50Hz.
- Electrical Outputs:  
Maximum of 1.0AMP  
To Solenoid Valves - 24 VAC 50/60 Hz 0.5 AMPs max.  
To the Master Valve/Pump Start - 24 VAC 0.25AMPs max.

## Note

Transformer and fuse capacity must be compatible with output requirements.

- Overload protection:- Standard 20mm 1 Amp fuse.
- Power failure: 9 Volt block type battery maintains clock and permanent memory chip retains programs.
- The output circuits should be installed and protected in accordance with wiring rules.

# Servicing The Controller

The controller should always be serviced by an authorized agent. The controller is designed to be easily dismantled for service.

Follow these steps:

- 1 Turn Mains power off to the Controller.
- 2 Disconnect 24 Volt power leads to the "24 VAC" terminals.
- 3 Clearly mark or identify all valve wires according to the terminals, they are connected to (1 to 16). This allows you to easily wire them back to the controller, maintaining your valve watering sequence.
- 4 Disconnect all the valve & sensor wires from the terminal block.
- 5 Remove the 2 screws underneath the terminal cover.
- 6 Slide the panel out of the box. Leave the fascia connected to the circuit board.
- 7 Carefully wrap the panel in protective wrapping and pack in a suitable box. Return to your service agent or the manufacturer.
- 8 Replace your panel by reversing this procedure.

## Fault Finding Guide

Symptom	Possible Cause	Suggestion
No display.	Faulty transformer. Fuse blown.	Check fuse, Check field wiring, Check transformer.
Single Station not working.	Faulty solenoid coil. Sensor in moist state	Swap faulty station wire on controller terminal block with known working station wire. If the faulty valve still does not work on the known working connection then the solenoid coil is faulty. If not then panel may need to be repaired. Turn soil sensor switch OFF
Fuse blows.	Incorrect wiring or bad wiring joint.	Check wiring and joints.
No automatic start.	Incorrect programming or blown fuse. No water supply	If unit works manually check programming, check water supply Check fuse and field wiring.
Buttons on keypad not responding.	Short on keypad or Programming not correct.	Check instruction book to ensure programming correct. If keypad still not responding return panel to supplier or manufacturer.
System coming on at random.	Short on keypad or too many start times entered on automatic programs.	Check number of start times entered on each program. If programming is correct return panel to supplier or manufacturer.
More than 1 station coming on at once.	Damaged main output driver chip.  Valve stuck on.	Check wiring and swap faulty station wire(s) on controller terminal block with known working station wire. If the same outputs are still locked on, return panel to supplier or manufacturer.
Pump start chattering.	Faulty relay or pump contactor.	Electrician to check voltage on pump relay or contactor.
Display cracked or missing segments.	Display damaged during transportation.	Return panel to supplier or manufacturer.

## Spare Watering Planner

STN No.	SENSOR	GARDEN AREA	PROGRAM NO	STATION WATERING DURATION	WATERING START TIME(S)	FREQUENCY OF WATERING
1	Y					
2	Y					
3	Y					
4	Y					
5	Y					
6	Y					
7	Y/N					
8	Y/N					
9	Y/N					
10	Y/N					
11	Y/N					
12	Y/N					
13	N					
14	N					
15	N					
16	N					

# Spare Watering Planner

STN No.	SENSOR	GARDEN AREA	PROGRAM NO	STATION WATERING DURATION	WATERING START TIME(S)	FREQUENCY OF WATERING
1	Y					
2	Y					
3	Y					
4	Y					
5	Y					
6	Y					
7	Y/N					
8	Y/N					
9	Y/N					
10	Y/N					
11	Y/N					
12	Y/N					
13	N					
14	N					
15	N					
16	N					

# Spare Watering Planner

STN No.	SENSOR	GARDEN AREA	PROGRAM NO	STATION WATERING DURATION	WATERING START TIME(S)	FREQUENCY OF WATERING
1	Y					
2	Y					
3	Y					
4	Y					
5	Y					
6	Y					
7	Y/N					
8	Y/N					
9	Y/N					
10	Y/N					
11	Y/N					
12	Y/N					
13	N					
14	N					
15	N					
16	N					

# Your Guarantee

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

The guarantor does not guarantee the fitness for a particular purpose of its products and does not make any guarantee, expressed or implied, other than the guarantee contained herein. The guarantor 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 guarantee 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 company. This guarantee shall not apply to any batteries or accessories used in the equipment covered under this guarantee 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 pre-paid freight.

## **HOLMAN INDUSTRIES**

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