



HERON ELECTRIC COMPANY LTD

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# **Operating and Installation Manual**

Access Ma6 Multi -Wire Controller

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## 1. About This Controller

Congratulations, you are now the owner of a Heron/Access Ma6 irrigation controller.

Your controller will operate 24volt AC solenoid valves. The controller will run the valves for the length of time, and in the order you specify. This sequence of running solenoid valves is known as an **irrigation program**.

Irrigation programs can be started automatically at pre-set start times. Alternatively, an irrigation program can be started manually at any time.

### Fuses

Input fuse = 20mm/500ma

Output Fuse = 20mm/1.6amp

## 2. Installation

**WARNING** Installation should be carried out by a Competent Electrician.

### Mounting the Controller

The controller should be protected from the elements and mounted using suitable screws, one screw through each corner lid bolt hole.

Warning: Additional holes should not be drilled through the controller casing.

Do not mount the controller in direct sunlight. Do not mount the controller where it can be exposed to temperatures above 40 deg C.

### Wiring Up Your Controller

The Ma6 controller should be wired up as shown in Fig 1 below.

### Connecting Mains Supply

**IMPORTANT.** Switch off the mains supply before connecting the controller.

Check that the MAINS SUPPLY VOLTAGE IS THE SAME AS THE VOLTAGE OF THE CONTROLLER. The controller voltage is displayed on the inside the controller casing.

The mains supply should be fused with a 3-amp fuse and be connected via a Residual Current Circuit Breaker as per any equipment used in damp conditions.

Connect the mains supply to the three terminals inside the IEC plug Live to L, Neutral to N and Earth to E as indicated on the plug.

### Connecting Solenoid Valves

Connect each solenoid valve to the appropriate output as shown in Fig 1. The common wire from each solenoid valve should be connected to the "C1" terminal.

The solenoid output voltage is an Extra Low Safety Voltage. Keep solenoid cables and connections separate from mains voltages as per regulations for Extra Low Safety Voltages.

### Connecting A Pump

The pump output is across the "O1" and "C1" terminals. Connect a suitable 24V relay across these terminals to control the pump.

```

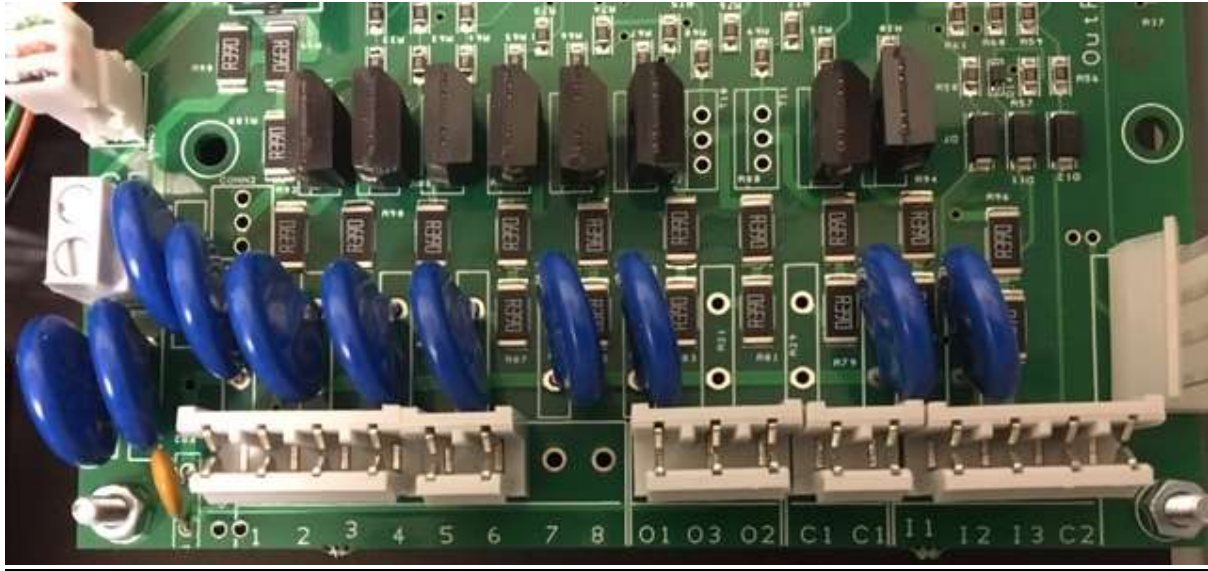
MAIN MENU
>Program Starts
  Programs
  Set Clock

```

## Surge Earth

Connect the **SE** terminal to a local dedicated earth rod. If this is not possible connect to a good earth.

## Fig 1 Wiring



1-6 SOLENOID VALVES

01=PUMP  
03=n/a  
02=24vac  
(low current)

COMMON

I1=FLOAT SWITCH  
I2=RAIN SENSOR  
I3=PRESSURE SWITCH  
C2=COMMON

## 3. More Inputs and Outputs

### Low Water Cut Out

A normally open float switch can be connected to "I1" and "C2" to monitor tank water levels.

Depending upon which option is set the following will occur:

#### STOP (option 9)

Once activated the program will stop and not restart.

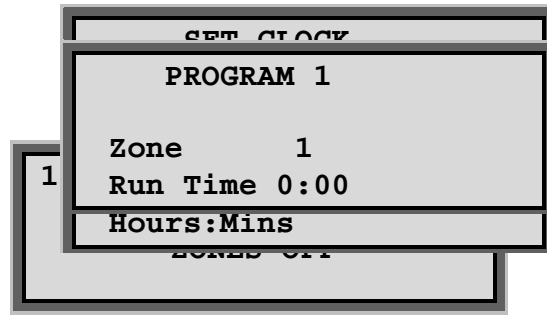
#### Low Tank (Option 10)

Once activated the program will be suspended until the float switch deactivates then restart at the same point.

A permanent 24vac supply is available across "02" and "C1" terminals this is a low current supply only.

## 4. Getting to know Your Controller

When you switch on the power the **Main Menu** will be displayed, as shown below.



To select any **Main Menu** item press the **OK/SELECT** button.

To return to the **Main Menu** at any time press the **MENU** button.

If you press **MENU** button on the Menu Page you will display the Time Page as shown below. “**ZONES OFF**” indicates that no zone valves are currently running.

Pressing the **MENU** button from the Time Page will return you to the **Main Menu**.

## 5. Resetting the Clock, Day and Date

Select “**Set Clock**” from the **Main Menu**.

The following screen will be displayed. The time is displayed in hours, minutes and seconds.

Use the left and right arrow keys to move the flashing cursor over the “**Time**”, “**Date**” and “**Day**” fields.

Position the flashing cursor over the hours, minutes, day, month, or year fields. Use the number keys to set these fields to the correct values.

Position the flashing cursor over the “**Day**” field press the **OK/Select** button to toggle through the days of the week until the current day is displayed.

Press the **MENU** button to return to the **Main Menu**.

## 6. Set Up or Edit an Irrigation Program.

Select “**Programs**” from the **Main Menu**.

The following screen will be displayed:

Initially your controller will be set up to have only 1 program so press **OK/Select** on this page.

**NOTE:** Your controller can run up to 16 irrigation programs. The number of programs your controller can operate can be changed by setting your controller Options.

PROG STARTS				
WEEKLY STARTS				
Prog 1	Mon	0:00	On	
Prog 1	Daily	3:00	Off	
Prog 2	Odd	15:00	On	

**NOTE:** Valve/Zone times are displayed in hours and minutes.

The number of zones can be set in the Options menu. Only set the number of valves you have connected.

Use the **Arrow** buttons to move the flashing cursor over the “**hours**” and “**minutes**” fields. Use the number keys to set the time required for each zone to run.

In the example below, **Zone 1** in **Program 1** will run for 30mins. To display the next Zone press the down arrow. Set run times for all the zones you have.

Press the **Menu** button to return to the **Main Menu**.

## 7. Set Up or Edit an Automatic Program Start Time

Select “**Prog Starts**” from the **Main Menu**.

The following screen will be displayed.

**NOTE:** Initially your controller will be set to have 3 automatic program starts a day (24hr starts). You can change the number in the standard options menu or simply use the weekly starts instead (eg: set option 2 - 0, option 3 -3 to remove the 24hr starts).

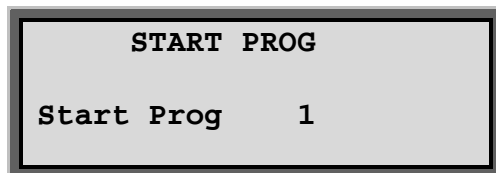
The time is displayed in hours and minutes. A start time should be entered using 24hour clock times (0:00 is midnight).

If you have more than 1 prog option set, use the arrow keys to move the flashing cursor over the program number. Use the number keys to enter the number of the program to be started.

Use the arrow keys to move the flashing cursor over the day and press Select/OK to change the day of the week, odd or even days or daily.

Use the arrow keys to move the flashing cursor over the hours and minutes fields. Use the number keys to enter the start time of the program (24hr clock).

**An automatic start must be activated in order for it to work.** Move the flashing cursor over the “**OFF**” field and press the **Select** button, and the **OFF** will change to **ON** and vice versa.



In the example above, **Program 1** will start on Mondays at 0:00, program 2 is set for 15:00 on odd days only.

Although a daily start time of 3:00 has been entered for **Program 1**, it will NOT run because an automatic start has not been switched on.

Press the **MENU** button to return to the **Main Menu**.

## 8. Starting and Stopping

To manually start a program, press the **START** button. If only 1 program is set the program will start immediately and run the zone/valves for the pre-set times.

The first zone/valve will run for its set time or pressing the **Advance/Set All** button will advance it onto the next valve.

If more than 1 program is set the following screen will be displayed:

Enter the number of the program to be started. Press **OK** to start the selected program.

### Manual Stop

Pressing the **STOP** button at any time when a program is running will stop the program immediately.

OPTIONS	
Number of Valves	12
Num 24Hr Starts	0
Num Weekly Starts	3

## 9. Fault Log

If a fault occurs “**Fault**” will appear in the Main Menu.

To view the fault log select “**Fault**” from the **Main Menu**.

The following screen will be displayed:

In the example above, there was a current overload when valve 2 was running.

## 10. Taking Care of Your Controller

**Never** - use sharp objects to press the buttons on your controller. Avoid pressing the buttons with your fingernails.

**Always** - ensure the lid screws are screwed down tightly to keep the inside of the controller dry and to reduce exposure to high humidity.

System shutdown – if the irrigation system is shutdown for any long period (eg: overwinter) leave the controller on but turn off the automatic start times. This will protect the internal circuit boards.

## 11. Changing Basic Controller Options

This section describes the basic configuration options you can set on your controller.

To access the controller’s basic configuration options, press the **MENU** button and then press and hold the **Advance/Set All** button.

The following screen will be displayed:

Select “**Standard Opt**” using the **OK/Select** button and the following screen will be displayed:



Scroll down the list using the **ARROW** buttons to select the required option then using either the number keys or the **OK/Select** button set the configuration option to its required value. Exiting out of the options menu will save any set options.

The chart below lists the default value and allowed values for each of the configuration options.

**IMPORTANT:** Always fully test any new configuration values after you have changed them to ensure the controller functions as you require.

**Note:** Your irrigation installer or dealer may have already set the configuration options to the required values for you.

No.	Option	Brief Description	Allowed values
<b>1</b>	Number of Valves	Set number of valves.	1-6
<b>2</b>	Num 24hr Starts	Set number of Daily automatic starts.	0-60
<b>3</b>	Num Weekly Starts	Set number of Weekly automatic starts.	0-60
<b>4</b>	Number of Prog	The number of irrigation programs	1-16
<b>5</b>	Pump Prime Mins	Set pump pressurisation time in minutes.	0-59
<b>6</b>	Pump Prime Secs	Set pump pressurisation time in seconds.	0-59
<b>7</b>	Rain Days (Heron rain sensor)	Rain sensor connected and number of historical days to be taken into account when measuring rainfall.	0-4
<b>7</b>	N/C Rain Switch	Rain on/off switch connected.	99
<b>8</b>	Man Percent	Display the global percentage adjustment of irrigation programs.	Y/N
<b>9</b>	Input1 Stop	Controller does a permanent Stop instead of Freeze	Y/N
<b>10</b>	Input1 Low Tank	Display “Low Tank” instead of “Freeze” or “Stop”	Y/N
<b>11</b>	Auto Disable	Enable one button (OK) auto start suspend	Y/N
<b>15</b>	Options in Main Menu	Display <b>Options</b> on the Main Menu	Y/N
<b>16</b>	Advanced Options	Display advanced configuration options	0-2
Setting option 16 to 2 enables additional options - see advanced options chart			

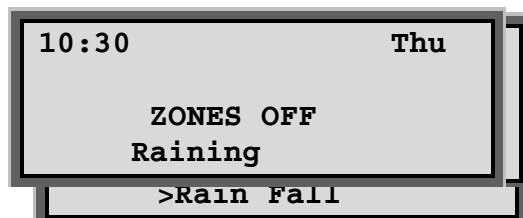
Setting option 15 to “Y” will provide a short cut to the options list from the main menu.

## Rain Sensor or Rain Switch Connected (Option 7)

### Heron Rain Sensor

The Heron rain sensor allows the irrigation program to be reduced depending on the amount of rain that has fallen over the last few days. Irrigation programs can be reduced by 25%, 50%, 75% or 100%.

If you have a Heron proportional rain sensor, set the “**Rain Days**” option to the number of days you wish the rain sensor to work over. This is rolling measurement for example if you set this option to 3 then rain that has



fallen within the last 3 days will still be included in the rain fall measurement. The maximum value you can set is 4.

Setting this option to zero will disable the rain sensor.

### Connecting the Rain Sensor

Connect the two terminals inside the rain sensor to Input 2 (across "I2" and "C2"). The terminals in the rain sensor are accessed by removing the bottom of the rain sensor. The terminals inside the rain sensor are solder type.

### Using the Rain Sensor

When this option is set, "**Rain Fall**" will appear in the **Main Menu**.

Select "**Rain Fall**" from the Main Menu.

The following screen will be displayed.

The current rainfall measurement in millimetres, and the current level of water reduction, are displayed.

The amount of rainfall to initiate a 25%, 50%, 75% and 100% reduction in irrigation are also specified on this screen. Use the forward arrow to move down this screen to see and enter the 50%, 75% and 100% irrigation reduction trip measurements.

In the example above, 0 mm of rainfall has been measured over the specified period. There has currently been no reduction in irrigation.

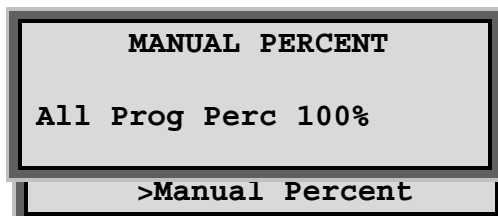
If rainfall measured reaches 1mm, then irrigation programs will automatically be reduced by 25%. If 2mm of rainfall is measured within the specified period, then irrigation programs will be reduced by 50%. At 3mm of rainfall, irrigation programs will be reduced by 75%. At 4mm of rainfall all irrigation programs will not run.

### Testing the Rain Sensor

The rain sensor can be tested by pressing the spoon down inside the rain sensor. The current rainfall level can be reset by highlighting the amount and pressing the **OK/Select** button twice then pressing the **MENU** button.

## Rain On/Off Sensor

The Heron controller can also accept an input from a simple Normally Closed rain sensor eg: Hunter MiniClik. If you have this type of sensor set the "**Rain Days**" option to "**99**". The rain switch is connected across terminals "**I2**" and "**C2**". If the sensor is active the controller display will read as follows:



## Man Percent (Seasonal Adjust)

Seasonal adjust option allows:

- All irrigation run times to be temporarily adjusted by a specified percentage (0%-250%).

If this option is set to “Y”, then “**Manual Percent**” appears in the **Main Menu**.

Select “**Manual Percent**” from the Main Menu.

The following screen will be displayed.

If no increase or decrease in irrigation is required, then the Global Adjustment value must be set to 100%.

A Global Percentage Adjust value from 1% to 250% can be entered. To reduce irrigation program run times by half, then the Global Percentage Adjust value should be set to 50%. To double the irrigation programs run time then this value should be set to 200%.

**IMPORTANT:** Do not leave the percentage value at 0%. No irrigation will run.

## Display Advanced Options

If you wish to use the ‘**Advanced Options**’ set standard Option 16 to “2”.

No.	Option	Brief Description	Allowed values
17	Number of cycling starts	Enables controller cycling starts.	0-16
26	Remote start program	Assigns remote start to specific program.	0-16
27	Rain Delay	Enables Droughtguard option.	Y/N
28	Pressure switch	Enables pressure switch connection I3+C2.	0-99
38	Max faults	Maximum faults before controller shutdown.	0-99
42	Del Zone-Zone	Delay between zone (50=5secs 150=5mins).	0-255
43	Weather station	Weather station connected	Y/N
44	ET equivalent	See weather station manual	
45	Number of programs affected		
46	ET start time		
47	ET Calc Type		
48	Wind Calibration		
49	Wind Inhibit		
51	Display output current	Controller displays output current	Y/N
57	Security	Keypad lock code 57??	01-99
74	Number of moisture sensors	See moisture sensor option	
78	Moisture hold off		
80	Moisture type		
81	Auto stops		
85	Reprogram	Reprogram controller	

Additional information is available for these options.

**Irrigation systems should only be installed by a competent person**