

HERON ELECTRIC COMPANY LTD

User Guide and Installation Manual

HM12 Pro HM16 Pro HM144Pro– Multi-Wire Controller

HM12 Pro / HM16 Pro /HM144 Pro
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1. About the Controller

HMpro controllers operate 24volt AC solenoid valves. The HM12pro can operate a maximum of 12 valves, the HM16pro a maximum of 16 valves. The HM144pro can operate 16 valves as standard and up to 144 valves with the addition of expansion cards.

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, a single solenoid valve or the pump, can be started manually at any time.

2. Installation

WARNING Installation should be carried out by a qualified Electrician.

Mounting the Controller

The controller should be mounted on a wall using four screws, one screw through each corner lid bolthole.

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 45 deg C.

Wiring Up Your Controller

The HM12pro, HM16pro and HM44pro controllers should be wired up as shown in Fig 1.

For an HM144pro with more than 16 valves, connect the output expansion box to the expansion box connectors. You can use either connector.

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 shown in Figs 1 and 2.

Wire the controller directly back to the main distribution panel. This is particularly important when large pumps or inductive electrical loads are also used.

Connecting Solenoid Valves

Connect each solenoid valve to the appropriate output as shown in Figs 1 and 2. The common wire from each solenoid valve should be connected to the "C1" terminal. Valves can be connected in parallel provided the maximum valve output current does NOT exceed the output current rating of the controller.

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

Pump/Master Valve Outputs

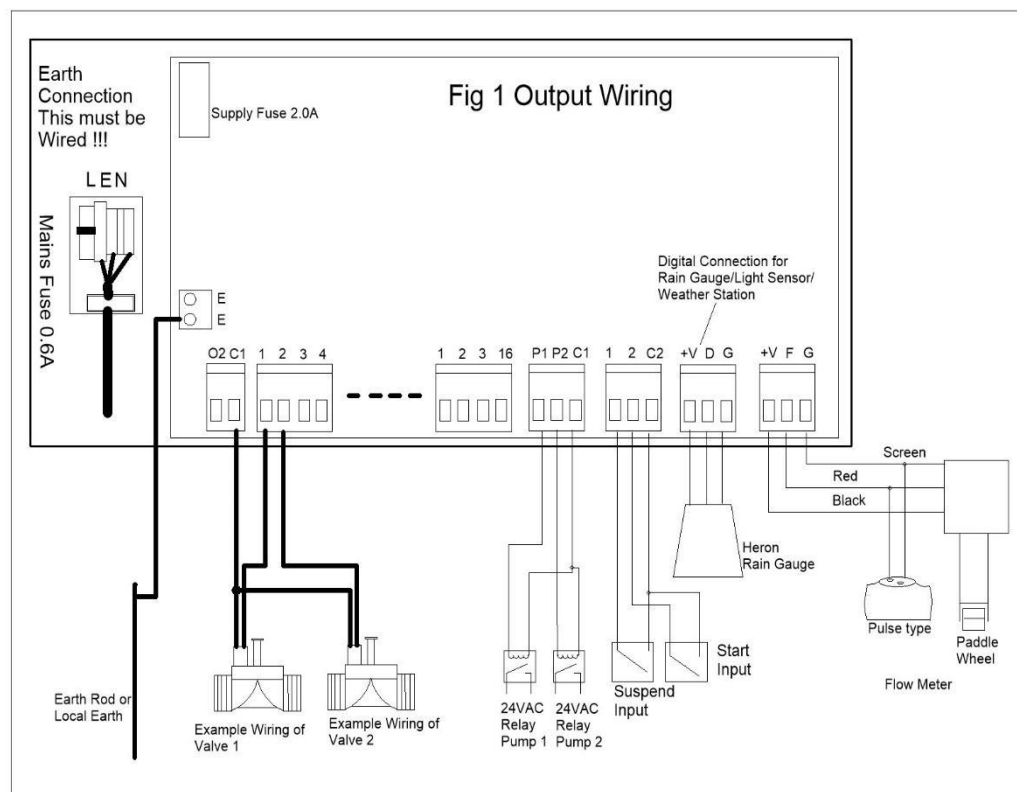
Two pump control outputs are available, namely "Pump-1" and "Pump-2".

The "Pump-1" output is across the "P1"/ "C1" terminals. Connect a suitable 24V relay across these terminals to control the pump.

The second pump output is across "P2" / "C1". Connect a suitable 24V relay across these terminals to control the second pump. The second pump output can be attached to programs by configuring pump control Option

Surge Earth

If your controller has a surge terminal (marked E1) connect this terminal to a local dedicated earth rod. If this is not possible connect to a good earth.



3. More Inputs and Outputs

Start Input

The Start Input is across "I2" and "C2". Joining these terminals will start program 1. The terminals have to be connected for only a short period, 1 second, to activate the program. The contact must be broken before the program will start again.

Suspend Input

The Suspend Input is across "I1" and "C2". Joining these inputs halts the irrigation programs. The programs will continue once the short is removed.

This input may be connected to a float switch in the water reservoir so that the irrigation sequence is halted if the water level is low.

The Suspend Input can be configured to be a stop rather than suspend input.

Flow Meter Input

A pulse type flow meter or paddle wheel flow meter can be connected to the flow meter input. A pulse type flow meter connects across the F and G terminals.

Paddle Wheel flow meters are connected to F and G and are powered from the +V terminal. The +V terminal provides +18VDC.

Climatic Sensor Input

The Climatic Sensor Input allows Heron sensors and the Heron weather station to be connected to an HMpro controller. Please see specific sensor manual for wiring instructions.

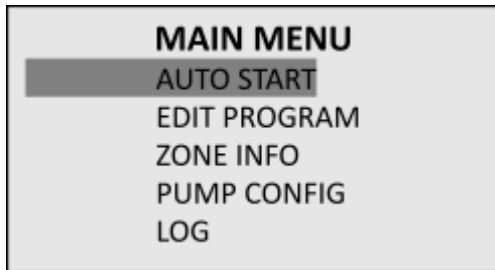
The Climatic Sensor Input also allows a simple rain switch (mini-click) to be connected to the HMpro controller. The simple rain switch is connected across the D and G terminals.

24VAC Permanent Output

A 24VAC permanent output is available across the terminals marked O2 and C1. This output is to supply low power 24VAC devices such as Heron interface cards and the Heron GSM module. This output is fused with by resettable **0.3A** fuse.

4. Getting to know Your Controller

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

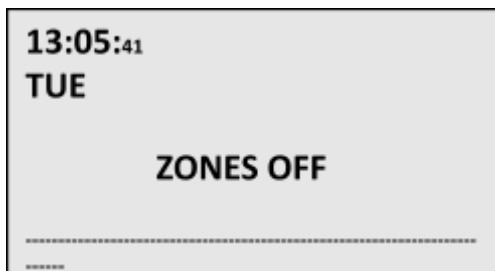


Additional menu items may be displayed depending on how the configuration options on your controller have been set. To scroll through **Menu** items press the “**Arrow Up**” and “**Arrow Down**” keys.

To select any menu item press the “**OK/SELECT**” key.

Repeatedly pressing **MENU** key will return you to the **Main Menu**.

If you press the **MENU** key on the **Menu Screen**, the **Time Screen** will be displayed, as shown below. The **Time Screen** shows the zones that are currently running.



5. Resetting the Clock and Date

Use the “**Arrow Down**” key to scroll to the “**CLOCK**” item on the **Main Menu**. Select “**CLOCK**” from the **Main Menu**.

The following screen will be displayed.

SET CLOCK			
TIME	13:08:50		
DATE	5/04/22		
COUNT	02	TUE	
14 COUNT	02		

Use the “**Left**” and “**Right Arrow**” keys to move the cursor over the time fields to change the time.

Press “**Arrow Down**” to move cursor over the date fields to change the date.

The day of the week will automatically change to the correct day for the date entered.

The “**Day Count**” reflects the day of the week that corresponds to the date entered. For example, if the date entered is a Monday, then the “**Day Count**” will automatically change to 01. If the date entered is a Friday, then the “**Day Count**” will change to 05.

The 14 “**Day Count**” reflects the day of the week over a two week period. When a date is entered or changed then the 14 “**Day Count**” is reset to week 1 of the two week period. For example if the date entered is a Wednesday, then the 14 “**Day Count**” will be automatically change to 03.

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

6. Set Up and Edit an Automatic Starts

Select “**AUTO START**” from the **Main Menu**.

The following screen will be displayed.

24HR START				
		TIME	ACTIVE	END
1	PROG 01	0:00	OFF	_____
2	PROG 01	0:00	OFF	_____
3	PROG 01	0:00	OFF	_____
4	PROG 01	0:00	OFF	_____
5	PROG 01	0:00	OFF	_____
6	PROG 01	0:00	OFF	_____

Initially your controller will be set to have a maximum of 6 automatic program starts per 24 hours. Your controller can have up to 60 automatic starts. The number of automatic starts can be changed by setting the controller’s Options. See section 15 “Changing Basic Configuration Options”.

The time is displayed in hours and minutes. A start time should be entered using 24 hour clock times.

Use the arrow keys to move the 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 cursor over the hours and minutes fields. Use the number keys to enter the start time of the program.

An automatic start must be activated in order for it to work. Move the cursor over the “OFF” field and press the “OK/Select” key. “OFF” will change to “ON”. The automatic start has now been activated.

When the cursor is moved away from the field the end time of the program will be calculated and displayed.

Press the **MENU** key to return to the **Main Men**

7. Set Up and Edit Program Names

Select “**EDIT PROGRAMS**” from the **Main Menu**. The **Program Menu** will be displayed.

Select “**PROG NAME**” from the **Program Menu**.

Program names default to “Prog 01”, “Prog 02” etc. Program names can be changed to a 10 character name of your choice.

PROGRAM NAMES	
	NAME
PROGRAM 1	PROG 01
PROGRAM 2	PROG 02
PROGRAM 3	PROG 03
PROGRAM 4	PROG 04

Select the program you want to rename and use the keyboard displayed to enter the name of the program.

Press the **MENU** key to return to the **Program Menu**.

8. Set Up or Edit Program Information

Select **“EDIT PROGRAMS”** from the **Main Menu**. The **Program Menu** will be displayed.

Select **EDIT PROGS** from the **Program Menu**.

The default configuration option is for your controller to have only 1 program, however your controller can run up to 28 irrigation programs. The number of programs your controller can operate can be changed by setting your controller configuration options. See section 15 “Changing Standard Configuration Options”.

If your controller has been set up to run multiple programs then select the program you want to edit by changing the program number.

The default is for programs to be in minutes and seconds. Once again, this can be changed to hours and minutes through the controller configuration options.

EDIT PROG

ENTER PROG **1**

NAME Grass01
RUN TIME 00:22:00 ZONE TIME MINSECS

Press **“OK/SELECT”** and the following screen will be displayed.

		PROG 1	R001 C1-2
1	ZONE 01	VALVE 1	0 :30
2	ZONE 03	VALVE 3	1:00
3	ZONE 05	VALVE 5	0:00
4	ZONE 07	VALVE 7	0:00
5	ZONE 09	VALVE 9	0:00

		PROG 1	R001 C2-2
1	ZONE 02	VALVE 2	1 :00
2	ZONE 04	VALVE 4	2:00
3	ZONE 06	VALVE 6	0:00
4	ZONE 08	VALVE 8	0:00
5	ZONE 10	VALVE 10	0:00

Use the arrow keys to move the cursor over the zone “minutes” and “seconds” fields. Use the number keys to set the run time required for each zone in the program.

In the top right hand corner of the program screen the row number, sequence or column number and the cursor position number are displayed, “C1-1”.

In example above the cursor is positioned on row 1 “R001”, in the first sequence or column of zones “C1”, on the first editable field in the row. “-1”. Program 1 has been set up so that zone 01 will run for 30 seconds, followed by zone 03 to run for 1 minute.

Moving the cursor with arrows keys changes the row number, sequence or column number and the cursor position number displayed.

If the option to allow parallel running of zones within a program has been set then or column number will change to “C2”.

Zone 02 has been set to run for 1 minute in parallel with zone 1 and zone 04 to run for 2 minutes in parallel with zone 03.

When program 1 is run the sequence of zones will be as follows:

- Zone 01 and zone 02 will start together.
- Zone 01 will run for 30 seconds, zone 02 will run for 1 minute.
- Once zone 02 has completed its 1 minute run time, then zone 03 and zone 04 will start.

Row numbers are used to set a common value for a set of zones. - See section 12 “Short Cuts”.

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

9. Set Up and Edit Zone Information

a. Zone Configuration

Zone properties need to be entered for each irrigation zone.

Select “**ZONE INFO**” from the **Main Menu** and the **Zone Menu** will be displayed.

Select “**ZONE CONFIG**” from the **Zone Menu**.

ZONE CONFIG							
ZN	O/P	CD	HIFL	LOFL	WM	DELAY	G
1	001	MW1	0600	0000	0	0:00	1
2	002	MW1	0600	0000	0	0:00	1
3	003	MW1	0600	0000	0	0:00	1
4	004	MW1	0600	0000	0	0:00	1
5	005	MW1	0600	0000	0	0:00	1

If there is a flow meter connected to your controller, then the expected maximum and minimum flow rate in litres/seconds can be entered for each zone.

Likewise, if more than one water meter is connected to your controller, then the meter associated with each zone should be entered.

A delay in seconds between a zone stopping and the next one in the sequence starting can be set.

Zones can also be assigned to groups. Zones properties, such as adjusting zone run times by a given percentage, can be applied to a group of zones.

b. Change Zone Name

Zone names can also be changed to a 10 character name of your choice.

To change a zone name, remain on the Zone Config screen.

Position the cursor over the zone number and press the “**OK/SELECT**” key.

Use the on screen keypad to enter the name of your choice.

Press the **MENU** key to return to the **Zone Config** screen.

Press the **MENU** key to return to the **Zone Menu**.

c. View Zone Names

Select “**ZONE INFO**” from the **Main Menu** and the **Zone Menu** will be displayed.

Select **“ZONE NAME”** from the **Zone Menu**. The following screen will be displayed showing zone names.

ZONE NAME				
ZN	NAME		O/P	CD
1	VALVE	1	001	MW1
2	VALVE	2	002	MW1
3	VALVE	3	003	MW1
4	VALVE	4	004	MW1
5	VALVE	5	005	MW1

Press the **MENU** key to return to the **Zone Menu**.

10. Pump Configuration

Select **“PUMP CONFIG”** from the **Main Menu**. The **Pump Menu** will be displayed.

a. Pump Prime Time

A pump prime pressurisation time can be set for each of the pumps connected to your controller.

Select **“PUMP PRIME”** from the **Pump Menu**.

PUMP PRIME			
1	PUMP	1	0:00
2	PUMP	2	0:00
3	PUMP	3	0:00
4	PUMP	4	0:00
5	PUMP	5	0:00

Pump pressurisation times are set in minutes and seconds.

Position the cursor over the minutes and seconds fields. Use the number keys to set the pump pressurisation time for each pump.

Press the **MENU** key to return to the **Pump Menu** screen.

b. Assign Pumps to Zones

To assign a pump to a particular zone select **“ZONE ASSIGN”** from the **Pump Menu**.

PUMP ASSIGN					
PUMP	P1	P2	P3	P4	P5
ZONE 01	YES	NO	NO	NO	NO
ZONE 02	YES	NO	NO	NO	NO
ZONE 03	YES	NO	NO	NO	NO
ZONE 04	YES	NO	NO	NO	NO
ZONE 05	YES	NO	NO	NO	NO

To assign a pump to a particular zone, position the cursor over the relevant field and press the **“OK/Select”** key. **“NO”** will change to **“YES”**.

Press the **MENU** key to return to the **Pump Menu**.

Note: **“SPARE”** option on the **Pump Menu** is not currently allocated to a function.

Press the **MENU** key to return to the **Main Menu**

11. Starting and Stopping

To manually start a program, a zone or a pump, press the **START** key to display the **Start Menu**

a. Program Start

Select **“START PROG”** from the **Start Menu**.

START PROG

ENTER PROG **1**

NAME Grass01

Enter the program number of the program you want to start and press the **“OK/Select”** key.

Press the **Menu** key to return to the **Start Menu**.

b. Zone Start

Select **“START ZONE”** from the **Start Menu**.

A screenshot of a control panel menu titled "START ZONE". The menu is enclosed in a rectangular border. At the top, the title "START ZONE" is centered. Below the title, there are two horizontal dashed lines. Between these lines, the text "ZONE NUMBER" is followed by a small box containing the number "1". Below that, the text "TIME" is followed by "0:00:00".

Enter the zone number and the required run time. Press the **“OK/Select”** key.

Press the **MENU** key to return to the **Start Menu**.

c. Pump Start

Select **“START PUMP”** from the **Start Menu**.

A screenshot of a control panel menu titled "MANUAL PUMP". The menu is enclosed in a rectangular border. At the top, the title "MANUAL PUMP" is centered. Below the title, there are two horizontal dashed lines. Between these lines, the text "PUMP NUMBER" is followed by a small box containing the number "1". Below that, the text "TIME" is followed by "0:00:00".

Enter the pump number and the time you want to run the pump for in hours, minutes and seconds. Press the **“OK/Select”** key.

Press the **MENU** key to return to the **Start Menu**.

d. Manual Stop

Pressing the **“STOP”** key will result in immediately stopping any pump, zone or program which is running at that time.

12. Short Cuts

a. Set All

When setting up an irrigation program, the “**Set All/Auto Disable**” key allows a quick method of setting a number of zones to run for the same length of time.

Go to the program set up screen where zone times are entered.

PROG 1			R001 C1-2
1 ZONE	01	VALVE 1	0:00
2 ZONE	02	VALVE 2	0:00
3 ZONE	03	VALVE 3	0:00
4 ZONE	04	VALVE 4	0:00
5 ZONE	05	VALVE 5	0:00

To set a group of zones to the same run time, press “**Set All**”.

SET ALL	
FROM ROW	001 to 001
RUN TIME TO	0:00

Enter the range of zones to be set to the same run time.

The zone range is specified in terms of the row number of a zone in the irrigation program. The row number of a zone is displayed in the top right hand corner of the program screen when the cursor is positioned on that zone.

Enter the run time in minutes and seconds for the range of zones selected.

Press the **MENU** or “**Set All**” key to return the program editing screen.

b. Manual Advance

When an irrigation program is running, press the “**Arrow Right**” key to move onto the next zone in the sequence. This can be useful when testing your system.

13. Log

All controller events and faults are recorded and can be viewed in the “**Event Log**”, “**Zone Log**” or “**Fault Log**”.

Select “**LOG**” from the **Main Menu**. The **Log Menu** will be displayed.

Select the log you want to view.

All faults which have occurred can be viewed on the “**Fault Log**”.

The “**Zone Log**” displays the events for the last 30 zones which have run.

The “**Event Log**” displays all the events that have occurred.

If a fault has occurred then one of the following codes will be displayed.

Controller Displays	Message	Fault	Controller Response	Action
O/L1	OL1 with Zone Number	Too much current is flowing to operate the decoder.	All irrigation programs will be immediately stopped	Check Cable
O/L2	OL2 with cable number	Short on two wire cable. More than 1.6A being drawn	All irrigation programs will be immediately stopped	Check Cable
Deco	Zone Number with Deco	No acknowledgement from decoder when switching on	Current and subsequent irrigation programs will continue as normal.	Find the decoder with the 'zone reference number'. Check decoder serial number is correct. Check decoder is connected and is connected the correct way round. Finally try the decoder locally at the controller.

Taking Care of Your Controller

Never - use sharp objects to press the keys on your controller. Avoid pressing the keys 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.

14. Electrical Conformity

USA This product has been certified as an FCC **Class B** device.



Declaration of Conformity

We herewith declare that all products manufactured by the company below meet the requirements of EC directives.

Applied Standards Are:

EN 50081-1 EMC Generic Emission

EN 50082-2 EMC Generic Immunity

To comply the product must be permanently installed in accordance with the installation instructions provided and the electrical supply must be sinusoidal.

Heron Electric Co Ltd,

Unit G15 Rudford Industrial Estate, Arundel, England

15. Changing Controller Options

This section describes the basic configuration options you can set on your controller. Your controller has 13 basic configuration options. If you need to use the more advanced features of the controller please refer to the '**Advanced Options**' manual.

WARNING

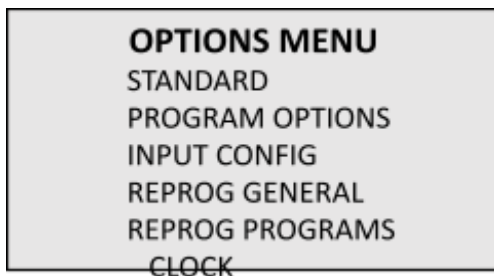
Do not adjust Advanced Configuration Options without referring to the "Advanced Options" manual.

Keep a record of any options values before and after a change.

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

Your Installer may have already set your installer or dealer may have already set your controller to the required values.

To access the controller's basic configuration select **OPTIONS** from the **Main Menu**.



a. Standard Configuration Options

Select "**STANDARD** from the **Options Menu**.

STANDARD OPT		ROW 001
1	NUMBER OF ZONES	016
2	NUMBER OF 24HR STARTS	006
3	NUMBER OF WEEKLY STARTS	000
4	SKIP DAYS STARTS	000
5	NUMBER AUTO STOPS	000

Use the arrow keys to scroll through the 13 basic options. Use either the number keys or press the **OK/Select** key to set the configuration option to its required value.

The table below lists the allowed values for each of the configuration options.

No.	Option	Brief Description	Allowed values
1	NUMBER OF ZONES	Set number of zones.	*Size of controller
2	NUMBER 24HR STARTS	Set number of Daily automatic starts.	000-064
3	NUMBER WEEKLY STARTS	Set number of Weekly automatic starts.	000-064
4	SKIP DAY STARTS	Set number of days to miss before auto start activated again.	001 - 032
5		CURRENTLY NOT IN USE	
6	NUMBER OF PROG	Set number of programs.	001-028
7	USE RAIN GAUGE	Rain gauge connected.	000/001
8	MANUAL PERCENT	Manual percentage adjustment of irrigation programs	000/001
9	INPUT 1 USE	Controller suspends irrigation programs or permanently stops irrigation programs.	000-002
10	INPUT 1 MESSAGE	Display Low Tank instead of Suspend or Stop.	000/001
11	AUTO ENABLE OPTION	Use 'Disable Automatic Starts' facility	000/001
12		CURRENTLY NOT IN USE	
13	ZONE INFO	Turn Zone Information display on /off	000/001
14	CONFIG PROGRAM	Allows zones within a program to be changed.	000/001
15	PROGRAM PERCENT	Increase or decrease an irrigation program run time by a specified percentage	000/001
16	USE NAMES	Program name displayed when the program is running.	000/001
17	NUMBER OF CYCLING STARTS	Set the number of cycling starts required, i.e. the cycling of programs between specified times of the day.	000-032
18	NUMBER FLUSH FILTERS	See Backflush Manual	N/A
19	PRIORITY FLUSH	See Backflush Manual	N/A
20	PARALLEL PROGRAMS	Specify the maximum number of programs that can be run in parallel.	000-006 as standard
21	PARALLEL MANUAL STARTS	Specifies the maximum number of zones that can run in parallel whilst an irrigation program is running.	000-004
22		CURRENTLY NOT IN USE	
23		CURRENTLY NOT IN USE	
24	ENG OPTION ENABLE	See Engineering Options Manual	N/A
25	GSM LAN	See GSM Manual	N/A
26	GSM LAN RESET	See GSM Manual	N/A
27		CURRENTLY NOT IN USE	
28	NUMBER OF FLOW METERS	Specify a flow meters is attached to the controller.	000-001 as standard
29	FLOW TEST ENABLED	Send a text alert if zone flow falls outside of its specified flow volume range.	000/001
30	ADVANCE LO FLOW	Advance to the next zone if low flow fault detected.	000/001 Y/N
31	ADVANCE HI FLOW	Advance to the next zone if high flow fault	000/001

		detected.	
32	MAX FLOW FAULTS	Specify maximum number of flow faults before a program is stopped.	000-099
33		CURRENTLY NOT IN USE	
34	ZONE LOG	CURRENTLY NOT IN USE	
35	WEEK AUTO EXTRA	Set to 001 to display daily, odd day, even day, 5 day and weekend program start options	000/001 Default 001
36		CURRENTLY NOT IN USE	
37		CURRENTLY NOT IN USE	
38	ENABLE SERVER LOG	See GSM Manual	N/A
39		CURRENTLY NOT IN USE	
40	REMOTE START PROG	Specify which program to initiate when contact closed on remote input.	000-028
41	REMOTE START TYPE	Caution – allows specified program to continuously run until remote input contact opens.	000/001 Default 000
42	CO ZONE	CURRENTLY NOT IN USE	
43	USE WEATHER STATION	See weather station Manual	N/A
44	USE ET CALCULATION	See Weather Station Manual	N/A
45		CURRENTLY NOT IN USE	
46	LIGHT INTERGRATION	See Weather Station Manual	N/A
47	GROUP PERCENT	Adjust a group of zones by a given percentage.	000/001
48	BACK UP PROG	The number of programs that can be delayed when program run times overlap.	000-004
45		CURRENTLY NOT IN USE	
50	TEST DECODER	See Test Controller Manual	N/A
51	DISPLAY CURRENT	Displays the current on the run time page.	000/001
52	EXTRA INFO	Displays controller pump start current and sensor status.	000/001
53	NUMBER OF MOISTURE	See Sensors Manual	N/A
54	FIRST MOISTURE	See Sensors Manual	N/A
55	MOISTURE MEAS RATE	See Sensors Manual	N/A
56	MOISTURE START STOP	See Sensors Manual	N/A
57	MOISTURE TYP	See Sensors Manual	N/A
58	FLOW LOG RATE x10S		000-099
59	FEP LOW RATE x10S	See Dosing Manual	N/A
60	WEATHER LOG RATE MINS	See Weather Station Manual	N/A

* This value depends on the size of the controller purchased.

1. Number of Zones

Set this to the number of zones attached to your controller. The maximum number of zones will depend on the size of the controller purchased.

2. Number 24hr Starts

If you need to increase or decrease the number of automatic starts allowed within a 24 hour period, use this option. Enter the required number of automatic starts.

The number of automatic starts on the “**24HR STARTS**” screen will be the same as the number entered here. If you do not want any 24 hour starts set this Option to 000.

3. Number Weekly Starts

If you require weekly starts, enter the number required under this option. If you do not want any weekly starts set this option to 000.

If this option is activated then “**WEEKLY STARTS**” will appear as an additional item on the **Auto Menu**.

Select “**WEEKLY STARTS**” from the **Auto Menu**.

WEEKLY START					
	DAY	TIME	ACTIVE	END	
1	PROG 01	MON	0:00	OFF	___
2	PROG 01	MON	0:00	OFF	___
3	PROG 01	MON	0:00	OFF	___
4	PROG 01	MON	0:00	OFF	___
5	PROG 01	MON	0:00	OFF	___

Use the arrow and number keys to select the program you want to assign a weekly start to.

With the cursor positioned on the “**DAY**” of the week, press the “**OK/Select**” key to toggle through the start options. The following options are available:

- A specific day of the week
 - Daily
 - On the odd days of the week – based on a 14 day count, (Monday week - 1 day 1 is odd, Monday week 2 - day 8 is even).
 - On the even days of the week – based on a 14 day count
 - 5 days a week (Monday to Friday)
 - Weekend (Saturday – Sunday).
-

The start time of the program should be entered using 24 hour clock times.

An automatic start must be activated in order for it to work. Move the cursor over the “OFF” field and press the “OK/Select” key. “OFF” will change to “ON”. The automatic start has now been activated. When the cursor is moved to the next row on the screen, the end time of the program will be calculated and displayed

Press the **MENU** key to return to the **Auto Menu**.

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

4. Skip Day Starts

Skip a day starts allow you to run a program and then miss a specified number of days before the automatic start is activated again.

Up to 32 skip day starts can be specified.

Select “**SKIP DAY STARTS**” from the **Auto Menu**.

Select the skip day start to be entered or edited.

AUTO SKIP 1			
PROG	01	ACTIVE	NO
START TIME	00:00		
SKIP DAYS	00		
DAY COUNT	00		
NEXT START	TODAY	07/04/22	
END TIME	_____		

Enter the program number, start time in hours and minutes and the number of days you want to skip before this auto start is activated again.

For example, if the **Skip Days** is set to “01” then this start will activated every other day.

The next time the auto skip start will be activated and the end time of the program are automatically displayed.

A skip day start must be activated in order for it to work. Move the cursor over the “NO” field and press the “OK/Select” key. “NO” will change to “YES”. The automatic start has now been activated.

When the cursor is moved away from this field to the end time of the program will be calculated and displayed.

6. Number of Programs

Set this option to the number of irrigation programs you need. The controller can support from 1 to 28 irrigation programs.

7. Rain Gauge

The Heron rain gauge allows irrigation programs 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 rain gauge, set this option to 001.

Setting this option to 000 or N will disable the rain gauge.

Connecting the Rain Gauge

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

Using the Rain Gauge

When this option is set "**RAIN GAUGE**" will appear in the **Main Menu**.

Select "**RAIN GAUGE**" from the **Main Menu**. The **Rain Menu** will be displayed.

Select "**SETTING**" from the **Rain Menu**.

The number of millimetres of rain to be recorded in order to trigger a percentage reduction in program run times can be entered on this screen.

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

RAIN GAUGE	
TODAY 00:0 MM	LAST 24HR 00.0 MM
CURRENT PERCENTAGE IS 100 %	
REDUCTION BY 25	00:0 MM
REDUCTION BY 50	00:0 MM
REDUCTION BY 75	00:0 MM
REDUCTION BY 100	00:0 MM

Testing the Rain Gauge

The rain gauge can be tested by pressing the spoon down inside the rain gauge.

Note: The rain gauge has no effect on a manual zone start.

To view the actual rainfall measured in the last 24 hour period, select "**RAIN FALL 24HR**" from the **Rain Menu**.

To clear the rainfall measurements at any time select "**CLEAR RAIN FALL**" from the **Rain Menu**.

Press the **MENU** key to return to the **Rain Menu**.

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

Rain On/Off Switch

The Heron controller can also operate with a simple On/Off rain switch. If you have a simple ON/Off rain switch set this option to "99". The On/Off rain switch is also connected across I2, C2. If the switch is triggered to an

"On" (closed contact) then irrigation programs will be stopped. Irrigations programs will not run again until the contact is in an "off" position (open contact).

8. Manual Percentage

The Manual Percentage option allows all irrigation run times to be temporarily adjusted by a specified percentage (0%-250%). Set this option to 001 if you require manual percentage adjust.

Select "**MANUAL PERCENT**" from the **Main Menu**. Enter the required percentage adjustment.

If no increase or decrease in program run times is required, then the manual percentage value must be set to 100%.

To half program run times, set this percentage to 50%.

To double program run times, set this option to 200%.

WARNING: If the percentage value is left at 0%, the program will not run.

9. Input 1 Use

This controls whether irrigation programs should suspend or permanently stop when the remote stop input is activated.

If this option is set to 000, then programs will run as normal even if the remote stop is activated.

Set this option to 001 to suspend programs when the remote stop is activated. Irrigation programs will start again from the point at which they stopped when the remote stop condition is removed.

Set this option to 002 to stop programs when the remote stop is activated. Irrigation programs will not automatically start again when the remote stop condition is removed.

10. Input 1 Message

Setting this option will change the remote stop input message to 'Low Tank'. To display 'Low tank' instead of 'Suspend' or 'Stop', set this option to 001.

11. Auto Enable Option

This option allows all automatic starts to be disabled by pressing and holding down the “**Auto Disable**” key when the **Time screen is displayed**.

Set this option to 001 to activate the auto start option. “**AUTO START ENABLED**” will be displayed at the bottom of the **Time** screen. Programs will run as normal.

If the “**Auto Disable**” key is pressed when the **Time** screen is displayed, then “**AUTO START DISABLED**” will be displayed and all automatic starts immediately disabled. Programs will not run.

Press the “**Auto Disable**” key again to reactivate automatic starts.

13. Zone Info.

Set this option to 001 to display “**ZONE INFO**” in the **Main Menu**.

Once all zone information has been entered this option can be set to 000 or N to remove “**ZONE INFO**” from the **Main Menu** and protect the data entered.

Any zone information entered will not be lost if this option is reset to 000 or N.

Resetting this option to 001 will allow access to zone information already entered.

14. Config Program

Setting this option to 001 to allow the changing of zones within a program.

On the edit program screen use the arrow keys to position the cursor on the zone number. The zone can then be changed.

		PROG 1	R001 C1-2	
1 ZONE	01	VALVE 1	0	0:00
2 ZONE	02	VALVE 2	0	0:00
3 ZONE	03	VALVE 3	0	0:00
4 ZONE	04	VALVE 4	0	0:00
5 ZONE	05	VALVE 5	0	0:00

15. Program Percentage

Set this option to 001 to display “**PROG PERCENT**” in the **Main Menu**.

PROG PERCENT		
PROG01	PERCENT	100 %
PROG02	PERCENT	100 %
PROG03	PERCENT	100 %
PROG04	PERCENT	100 %
PROG05	PERCENT	100 %

A percentage adjustment can be made for any individual program.

The adjustment will be applied pro-rata for each zone within the irrigation program. For example, if a program has 2 zones, zone 1 set to run for 6 minutes and zone 2 to run for 10 minutes. If the percentage adjustment is set for 50%, then zone 1 will run for 3 minutes and zone 2 for 5 minutes.

Likewise, if the percentage adjustment is set to 200%. Then in example above, zone 1 would run for 12 minutes and zone 2 would run for 20 minutes.

WARNING: Leave the percentage value at 100% for programs to have their normal run time. If the percentage value is left at 0%, the program will not run.

16. Use Names

Set this option to 001 to display the program name when the program is running.

17. Number of Cycling Starts

Set this option from 001 to 032 to specify the number of cycling starts required.

If this option is activated then **"CYCLING START"** will appear as an additional item on the **Auto Menu**.

Select **"CYCLING START"** from the **Auto Menu**.

If this option has been set to a value greater than one, enter a number within the range specified in the option.

CYCLING 1	
PROG NUMBER	01
ENABLED	NO
DAY START TIME	00:00
DAY STOP TIME	00:00
DELAY HRS MINS	00:00
NEXT START	INVALID

Specify the program to be cycled, the time of day to start and end cycling and any required delay between cycles.

A cycling start must be enabled in order for it to work. The next start time will be displayed when the cycling start is activated.

20. Parallel Programs

Set this option from 000 to 006 to specify the maximum number programs to run in parallel. The Heron controller runs up to 6 programs in parallel. Up to 16 zones can be run in parallel with the addition of extra cards.

21. Parallel Manual Starts

Set this option from 001 to 004 to specify the maximum number of zones that can be manually started when a program is running.

28. Number of Flow Meters

A standard controller can have one flow meter connected. Up to an additional 9 flow meters can be added with the addition of expansion cards. A single flow meter is connected across the “+V D G” and “+V F G” terminals.

Set this option to 001 if a single flow meter is connected. “**FLOW METER**” will be displayed in the **Option Menu** and “**FLOW VOLUME**” will be displayed in the **Main Menu**.

Select “**FLOW METER**” from the **Option Menu**.

METER 1	
METER TYPE	VOL 1 L
METER CONNECTED TO	MW1
K-FACTOR	00:00
DELAY BEFORE TEST	000 SECS
LEAK FLOW	0000 LPM

With the cursor on the **METER TYPE** field press the **OK/SELECT** button to set the meter type according to the type of flow meter connected.

- **VOL 1 L – Pulse meter 1 litre/Gallon**
 - **VOL 10 L – Pulse meter 10 litres/Gallon**
 - **VOL 100 L – Pulse meter 100 litres/Gallon**
 - **VOL 1000 L – Pulse meter 1000 litres/Gallon**
 - **ROTOR – Paddle wheel meter**
-

A single flow meter is connected to MW1 as standard. This field needs to be changed if additional cards have been added.

Set the **K-FACTOR** if a pulse meter has been connected.

If "**FLOW TESTING**" has been active – see option 29, then a "**DELAY BEFORE TEST**" time in seconds can be specified, before the measuring of the flow through a zone starts.

The **FLOW LEAK** field can be set to a volume of water that can be measured before a flow fault text alert message is sent.

Setting this option to 001 will also display "**FLOW VOLUME**" in the **Main Menu**.

Select "**FLOW VOLUME**" from the **Main Menu**. The **Flow Menu** will be displayed.

Select "**DISPLAY FLOW**" from the **Flow Menu**.

FLOW VOULME 1	
FLOW	000.0 LPM
VOLDAILY	00 LITRES
VOLTOTAL	00 LITRES
HOLD OFF	00
HIGH LIMIT	000.0 LPM
LOW LIMIT	000.0 LPM

If a program is running then the real-time flow will be displayed.

The daily volume of water will be displayed. This volume is reset to zero at midnight, or when manually reset from the "**CLEAR VOLDAILY**" option on the **Flow Menu**.

The total volume measured through the flow meter is also displayed. The volume will increase until this is manually reset from the "**CLEAR VOLTOTAL**" option on the **Flow Menu**.

The HOLD OFF field displays a countdown in seconds of the delay before the measuring of a flow through a zone starts.

The expected low and high flow volumes for each zone can be specified on the "**ZONE CONFIG**" screen.

The "**HIGH LIMIT**" and "**LOW LIMIT**" fields will display the expected flow limits according to the zone running at that moment in time. If zones are running in parallel, then the accumulative limits for the zones will be displayed.

29. Flow Test Enabled

Setting this option to 001 will result in a text message being sent if the measured flow volume is not within a zone's expected flow range. The expected flow volume for each zone can be specified on the "**ZONE CONFIG**" screen

30. Advance Lo Flow

If this option is set to 001 then an irrigation program will advance to the next zone in the program sequence should a low flow volume fault be detected.

31. Advance Hi Flow

If this option is set to 001 then an irrigation program will advance to the next zone in the program sequence should a high flow volume fault be detected.

32. Max Flow Faults

Set this option from 000 to 099 to specify the number of flow faults to be detected before the irrigation is stopped.

35. Week Auto Extra

WARNING – this option should be set to 001 as default.

If this option is set to 000, then the options to start a program on the following basis **will be lost** on the “**WEEKLY START**” screen.

- Daily
- On the odd days of the week – based on a 14 day count,
- On the even days of the week – based on a 14 day count
- 5 days a week (Monday to Friday)
- Weekend (Saturday – Sunday).

40. Remote Start Prog

Set this option to the program number of the program to be run when the remote input “C2-I1” is closed.

The program will run once when the contact is closed. The program will not be initiated again until the remote input contact is opened and then closed again.

41. Remote Start Type

Caution – the default value for this option is 000.

If this option is set to 001 then the program assigned to the remote input “C2-I1” will run continuously when the contact is closed. It will continue to run until the contact is opened.

47. Group Percent

Set this option to 001 to display “**GROUP PERCENT**” in the **Main Menu**.

PROG PERCENT		
GROUP01	PERCENT	100 %
GROUP02	PERCENT	100 %
GROUP03	PERCENT	100 %
GROUP04	PERCENT	100 %
GROUP05	PERCENT	100 %

Zones can be assigned to a group on the “**ZONE CONFIG**” screen.

The adjustment will be applied pro-rata for each zone within the group. For example, if a group has 2 zones, zone 1 set to run for 6 minutes and zone 2 to run for 10 minutes. If the percentage adjustment is set for 50%, then zone 1 will run for 3 minutes and zone 2 for 5 minutes.

Likewise, if the percentage adjustment is set to 200%. Then in example above, zone 1 would run for 12 minutes and zone 2 would run for 20 minutes.

WARNING: Leave the percentage value at 100% for programs to have their normal run time. If the percentage is at 0%, the irrigation program will not run.

48. Back Up Prog

Set this option from 001 to 004 to specify the number of programs that can be delayed if program run times overlap.

If a program is already running and another program is due to start and this option has been set, then the second program will not start until the first program has finished. A maximum of 4 programs can be delayed.

If this option is not set then any overlapping programs will not run.

51. Display Current

Set this option to 001 to display the current on the run time page. .

52. Extra Info

Set this option to 001 to display “**EXTRA INFO**” in the **Main Menu**.

This screen displays the controller pump start current and the status of any sensors if they are connected.

58. Flow Log Rate x10S

Enter the number seconds to be multiplied by 10, to wait before flow rate is measured. For example if this option is set to 10, then the flow rate will be measured every 100 seconds.

b. Program Options

This option allows you to specify the number of zones in a program, the number of zones to run in parallel and to specify zone run times in hours and minutes.

Select "**PROG OPTIONS**" from the **Options Menu**.

Enter the number of the program you want to edit. The following screen will be displayed.

PROG OPTIONS		ROW 001
1	PROGRAM SIZE	016
2	NUMBER OF ROWS	006
3.	NUMBER OF COL	000
4.	HOURS and MINS	000
5		

There are currently 3 options for editing a program. Note "**PROGRAM SIZE**" is calculated automatically as a multiple of the number of rows and columns.

Set the "**NUMBER OF ROWS**" to the number of zones you want to have in a program. This number is limited by the size of the controller you have purchased.

Set the "**NUMBER OF COL**" to the number of zones you want to run in parallel within the program.

Set the "**HOURS and MINS**" field to "001" if you want to set zone run times in hours and minutes.

c. Reprogram General

To reset either individual functions of your controller or the whole controller to factory default settings use the "**REPROG GENERAL**" option from the **Option Menu**.

Select "**REPROG GENERAL**" from the **Options Menu**.

REPROGRAM			
DATA	CODE	REENTER	REPROG
AUTO STARTS	086	000	NO
PUMPS DELAY	118	000	NO
ZONE NAMES	150	000	NO
ZONE CONFIG	182	000	NO
DOSE OPTIONS	214	000	NO
FACTORY RESE	246	000	NO

In order to reset a function or complete a factory reset, the corresponding code must be entered in the **“REENTER”** field and the **“REPROG”** field set to **“Yes”**.

For example to reset Auto Starts, the **“REENTER”** field must be set to **“086”**.

d. Reprogram Programs

To reset either individual programs or all programs use the **“REPROG PROGRAMS”** option from the **Option Menu**.

Select **“REPROG GENERAL”** from the **Options Menu**.

REPROGRAM			
DATA	CODE	REENTER	REPROG
PROG ALL	001	000	NO
PROG 01	002	000	NO
PROG 02	003	000	NO
PROG 03	004	000	NO
PROG 04	005	000	NO
PROG 05	006	000	NO

In order to reset a specific program or all programs, the corresponding code must be entered in the **“REENTER”** field and the **“REPROG”** field set to **“Yes”**.

For example to reset Prog 02, the **“REENTER”** field must be set to **“002”**.