

## User Instructions for Irrigatia IRR-SOL-C120

### Positioning



Mount the controller close to the water source and preferably low down so that the pump inlet is below the water line in the tank. The plastic case is weather resistant but can be mounted inside if desired. The solar panel should be mounted, facing the midday sun within 5m of the controller's location. It is easy to disconnect the solar panel lead from the control circuit inside the controller if it needs routing through holes, though re-connecting it may need needle

nosed pliers.

### Water inlet tube



This can be connected to a tap on your tank (NOT a mains tap) or inserted through a hole in the top of the tank, but in either case the water should be drawn at least 10cm clear from the bottom to avoid drawing in debris. Route it to the inlet connector on the pump (on the right hand side as you look at it) and cut to length, Then use the reducer/connector provided to connect to a piece of 10mm tube which is connected to the pump inlet and held in place by a hose clip.

### Water level sensor

The water level sensor comprises 2 wires with probes on the end and is supplied ready connected to the controller. The probes should be positioned in the tank so that one of them is just below the water inlet and the other 5cm above it. The system will stop and beep when the water level falls below the higher probe.

### Water outlet tube & filter

Again using the reducer/connector, 10mm pipe and hose clip, connect the distribution pipe. In a convenient location put the filter in line, never use the system without filtration. Route the distribution pipe so that it passes close to the areas you want to water.



## Supplement feed pump

The C120 has 2 pumps. As well as the water pump there is a small supplement pump which runs for 1 second in every 10 (Your feed concentrate needs to be 100x the strength you wish to apply to your plants). This can be used to dose your water with 100% soluble supplements. Connect a piece of small bore tube from your supplement container to the pump inlet (left hand side) and a short length of tube to connect the pump outlet to the distribution pipe after the water pump.

## Irrigation kits

You will need to use between 6 and 12 irrigation kits with the C120 (up to 120 drippers). If you need to use fewer than 6 you will need to bypass some water back to the tank. More is also possible, but more care will be needed in the system design to ensure water reaches the whole system. This means that all outlets will need to be closer to the same height and that differences in distance from the emitters to the pump should not be excessive. You can achieve the latter by using a ring main or centre feeding (teeing the distribution pipe to feed both ways).

To attach the kits use the hole punch and connector nipple to connect the small bore tube in the kit. Use the tees and stoppers provided to split and close the pipe ends as necessary.



Dripper kits – 12 or 20 drippers, tees and stakes with 15m of small bore tube. Cut and join the pipe using the tees to make a network which reaches all of your plants. Remember the rules for even watering apply especially where there are more than 12 drippers.

## Seep hose kits

Seep hose can be plugged onto individual drippers with a stopper at the other end in lengths of up to 1m, 2m where connected to a dripper at both ends. They will not change the water output, but they spread it out more which is useful for seedlings and small plants. Works best slightly buried.



**Micro-porous hose** emits water along its whole length, but unlike seep hose is best used in long lengths. Follow the kit instructions plus use the punch and connector nipple to connect with the distribution pipe.

## Starting up

Remove the case lid, be careful not to drop the screws which is easily done.

If you are not using the supplement pump, unplug it from the PCB.

Either connect the battery pack supplied or put 1.2v, NiMH rechargeable AA batteries into the battery holder in the lid and connect that to the PCB. This will be either 10 or 20 batteries. Be careful to ensure all the batteries are the right way around and not to strain the connecting wires.



Turn the unit on to number 3, **IF** there is charge in the batteries the pump will start to run after about 5 seconds and the red light will stay on. If the pump stops check the light for the following

- Flickers continuously, after 30 seconds there is a beep – low water, check water and level sensors.
- Flashes once every 10 seconds. It is too dark, or the solar panel is not connected.
- Flashes 1 to 5 times on a 5 second cycle. The batteries are low, this is charging mode and the number of flashes indicates the switch position. Each flash equates to 1 second charge during the 5 second cycle. So pumping can be controlled between 20 and 100% of maximum. If this happens leave the unit turned on and in good daylight it should start automatically 3 hours later.
- Flickers 1 second, off 1 second. This means the optional soil moisture probe is fitted and is sensing the soil is already wet enough, so the pump will not run.

Supplementary pump – if the main pump is running, this should start for one second in every ten. If you do not need it, unplug it from the PCB.

When you happy with the above replace the lid. If the batteries are fully charged when you first turn on, the pump may run for hours. In this case it may be better to divert the water back to the tank.

After 24-48 hours the unit should have settled down. Monitor the water application. If there is too much turn the switch down to 2 or 1(anti-clockwise), if too little turn it up to 4 or 5.



## PCB (printed circuit board) plug positions

The connections on the PCB are labelled.

There are three along the top of the board and starting nearest the corner they are

- Moisture sensor – this should be empty unless you have the optional moisture sensor kit.
- Level sensor – level sensor should be connected. If you don't want a level sensor it can be disconnected but must be replaced with a "jumper" to complete a circuit between the electrodes.
- Beep – the beeper should be connected to this. If you don't want an audible alarm just unplug it.

There are two at the bottom, starting nearest the corner they are

- Solar panel – clearly unless the solar panel is connected, nothing will work. On some PCB's this is hidden under a capacitor, on others, not.
- Battery – Either the battery pack or battery holders in the lid should be connected here.

There are two on the far side. Starting at the bottom working up they are: -

- Pump 1. The big water pump should be connected here.
- Pump 2 is for the small supplement pump. Disconnect if you are not using this.

## Contents

C120 controller with main pump and secondary feed pump, water level sensor, C120 Solar Panel with 5m lead, 1 x filter + 2 x 13mm adaptors, 2 x 13 to 10mm joiners, 2 x 20cm 10mm tube, 1 x 25m roll of 13mm tube, 1 x 4mm punch, 12 x 4mm joiners, 2 x 13mm t piece, 4 x 13mm end plug, 4 x 13mm elbow, 10 x 13mm stakes, 5 x 13mm clamps, 1 x 12v battery pack.