

Solar Automatic Watering System



Irrigatia SOL-C12/24 installation and operation

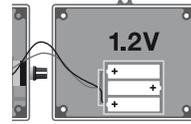
The weather responsive SMART irrigation controller



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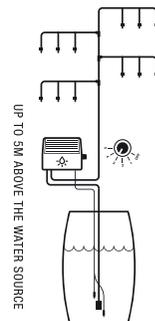
Getting Started

The control unit requires 3 x AA rechargeable batteries (NOT NORMALLY INCLUDED – please check the box). To insert batteries remove the lid carefully by removing 5 screws (taking care not to detach the wire connecting it to the case). Insert the batteries into the case ensuring the + is in the correct position, then replace the lid and screws.



Attaching the control unit

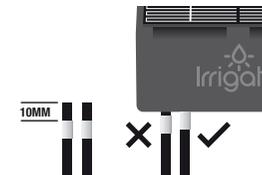
The CONTROL UNIT should be fixed to a wall or post facing in a sunny direction. If your water barrel is in a shady position, the control unit may be sited some distance from the water barrel. It should be no more than 2 metres higher than the bottom of the barrel or more than 20m distant.



Connect to the water barrel

Drill a 5.5mm hole in the lid, or near the top of the water barrel, above the water line. Thread some tubing through the hole and attach the filter to it. Adjust the tubing so the filter hangs about 10cm above the bottom of the barrel. The other end of the tube should be taken to the control unit, cut cleanly to length and attached to the pump inlet – the left hand connector marked I.

The connections to the pump should be straight (to avoid leakage) and should not pull the control unit out of vertical. 5mm of tube needs pushing into the connector port to ensure a good connection and avoid potentially serious problems. You can easily measure, then mark 5mm with a piece of tape.



Water Level Sensor



The water level sensor is designed to detect low water in your rain barrel. When low water is detected, the unit will stop pumping and the LED will flicker rapidly (10x per second), if the unit is in day mode it will also beep every 10 seconds as a warning.

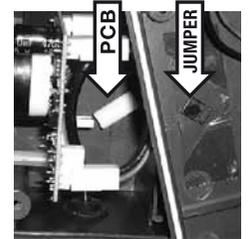
Installation:

The sensor probe should be attached to the water inlet tube a few

centimetres above the filter.

The filter should then be lowered into the rain barrel and suspended about 10cm above the bottom, where it is in clear water.

If the water level sensor is not required it should be unplugged from the PCB and the jumper (little plastic square) which is taped inside the lid, put in its place. A pair of needle nosed pliers will help facilitate this.



Check the PUMP

In a new control unit the batteries may be charged or flat. If they have charge in them, before connecting to the irrigation system, using a piece of tube connected to the outlet (marked O) discharging back to the water barrel, allow the unit to run until it stops.

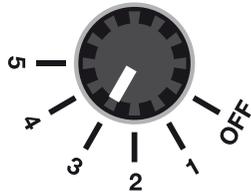
Connect to the irrigation system

The control unit is designed to work with between 6 and 24 drippers. Using less than 6 may cause damage. As you increase the number of drippers, less water will be emitted by each one, additionally there will be less back-pressure in the system so it will become less tolerant of height differences. With 12 drippers in place height differences of 2m are normally ok.



Switch on

Turn the knob to 3. Do not worry if the pump does not start it should start itself after 3 hours in good daylight. Please note the unit will not run in the dark. If after 24h the pump has watered too much, turn in down, or if too little turn it up. Repeat until you are happy.



If your pots/baskets drain a little after the afternoon watering on a sunny day, this is about right for most plants.

Monitoring

The timer on the control unit is zeroed by turning the unit off and on again. In daylight the pump will start automatically after a few seconds (if there is sufficient battery charge) and thereafter at roughly 3 hour intervals. The duration of pumping is determined by how much light/sunshine has fallen on the solar panel and the position of the control knob since it last ran. Put a dripper in a jug to see how much each dripper is delivering.

IMPORTANT – the batteries will NOT charge if the control unit is turned off.

Pump priming

The PUMP is self-priming, but if the outlet tubes are full of water disconnect it until all of the air has been pumped out of the inlet line, as a head of water above the pump can prevent it priming properly. In some situations it may be helpful to lower the pump until prime is established.

Control unit status indications

- LED on continuously – pump running
- LED charge rate indication – flashes per 5 second cycle – corresponds to switch position number.

- 1 = 20%
- 2 = 40%
- 3 = 60%
- 4 = 80%
- 5 = 100%

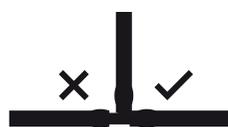
- LED flashes 10x per second and warning bleep sounds – water sensor detects low water. (Unit also stops watering)
- LED flashes 10x per second, then off 1 second. Soil moisture sensor (not included & not available with all models) detects soil wet enough. (unit stops watering)
- LED flashes once every 10 seconds – night mode, pump will not run and bleeper will not sound

Maintenance

Keep the control unit in a frost-free place in winter. Battery life is typically around 1 – 2 years but will vary considerably depending on the nature of usage. For peace of mind if the batteries are more than 1 year old, put in new batteries before going away on holiday then use the old ones up when you come back.

Laying the irrigation tubes

A typical layout is shown in fig1. The tube can be cut and joined in any way you wish to reach your plants. The highest dripper should be no more than 5m higher than the water source or 2m higher than the lowest dripper. Branches leading to groups of drippers are no problem and extra drippers can be put in bigger pots/baskets. The tube must be pushed/screwed right onto the drippers and tees to avoid leakage. Drippers should be staked in place.



Typically a SOL-C12 kit will supply enough water for 5 well grown 35cm hanging baskets, 12 tomato plants, 20 x 10 litre pots or a 12m by 30cm strip (about 4m²) of bed, though these figures will vary depending on soil and plant types. A SOL-C24 will supply twice as much water.



Installation of anti-siphon device

Where the level of the source water is higher than the first dripper or seep hose, an air release device will be required to prevent siphoning.



1. Remove the outlet tube from the control unit.
2. Cut tube 5 – 10cm from the end.
3. Screw the anti-siphon device onto the end of the tube leading to the drippers.
4. Screw the remaining short piece of tube on, then reconnect to the control unit outlet (marked 0).

When the pump has been running, the drippers will continue to drip for a short time while the delivery tube drains, but should then stop.

Installation of optional seep-hose kit (available to purchase separately)



Up to a metre of seep hose can be pushed onto each of the 12 drippers supplied with the starter kit. A stopper should be put in the other end and stakes can be used to hold it in position. This arrangement can be used to spread water over a larger area than the dripper alone and is useful for large pots/baskets, germinating short rows of seedlings, burying with the roots of valuable plants to aid establishment. Drippers can be at different heights, but the individual lengths of seep hose must be kept level.

Installation of optional micro-porous hose kit (purchase separately)

Between 6 and 24 metres, of micro-porous tube can be used, in one or more lengths with either the SOL-C12



or 24 control units, depending on how heavy an application of water is required.

The micro-porous hose is useful for long rows and beds. It can be laid on the surface, covered with a mulch or buried so is also useful for establishing hedgerows.

Troubleshooting – using the syringe to resolve occasional pumping problems



- After storage, pumps may fail to pump because the internal valves are stuck open or closed. To resolve, disconnect the inlet tube, connect

a syringe full of water and squirt it through the pump. Sometimes pumps which have lost prime are difficult to re-prime (usually older ones). If this happens disconnect the outlet tube, connect an empty syringe to the outlet and while the pump is running draw in with the syringe until water reaches the pump.

- Drippers which have become blocked can sometimes be cleared by using the syringe to push water into the outlet. It is best to remove the dripper from the irrigation system first so that dirt is not pushed back into the irrigation pipework.
- Drippers which have been used with mains water can become blocked with scale. Use the dripper to push mild acid or descaler into the dripper to dissolve it.
- Drippers blocked with organic material (including algae and bacterial slime) can be cleared by cleaning with mild hydrogen peroxide solution.

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SOL-C12

				
12x	12x	24x	5x	12m

Max capacity for one of each example shown



SOL-C24

				
24x	24x	48x	10x	24m

Max capacity for one of each example shown

For further information on this or any of the other products in our range, please visit:

www.irrigatia.com