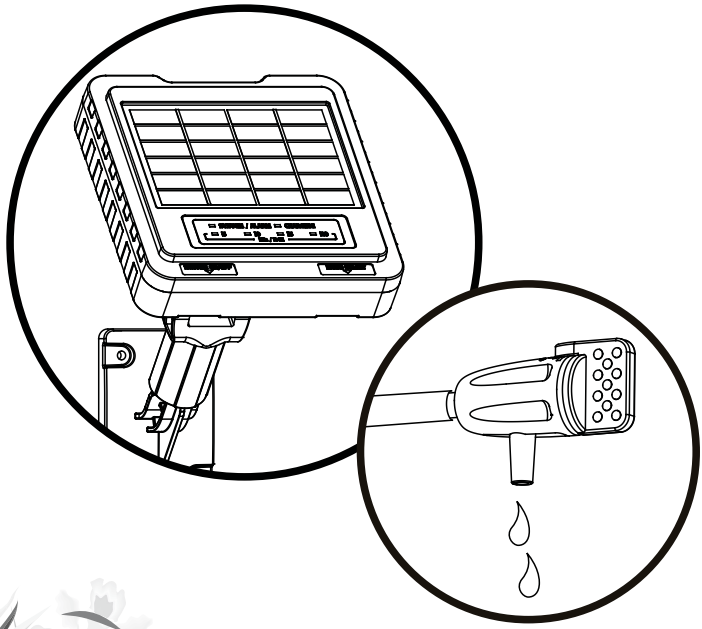
AUTOMATIC SOLAR GARDEN DRIP IRRIGATION SYSTEM

Designed for garden irrigation

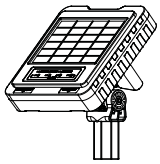
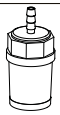
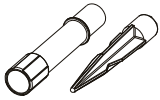
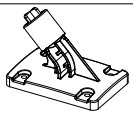
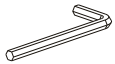
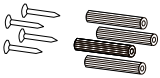
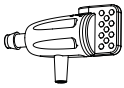
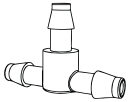
Item No.: SIS1-D20



1. OVERVIEW

1) The automatic solar garden irrigation system is designed for home gardening use, it is suitable for the irrigation of home grown ornamental plants and vegetables. The system is powered by solar energy. The Solar irrigator unit needs to be placed in the sunlight with its solar cells facing the sun as much as possible.
2) There are twenty drippers available, each or several drippers take care of one plant, the flow of dripper can be adjusted by the valve.
3) The system automatically irrigates the plants once a day for a certain minutes when solar panel feels the sunlight in the morning.
4) There are 4 working modes available differentiated by working minutes per watering to cater various needs from different types of plants, weathers, seasons and soils. The volume of the water irrigated per watering session is proportional to the working minutes.

2. COMPONENTS

Part No.	Description	Specs	Quantity	Schematic
1	Solar irrigator unit		1	
2	Filter		1	
3	Ground spike		1	
4	Water hose	Φ4MM / 20M	1	
5	Wall bracket		1	
6	Allen wrench		1	
7	Installation pieces		1 set	
8	Dripper	2L/H adjustable	20	
9	Earth rod	10CM	20	
10	Tee connector	Φ4MM	20	

3. INSTALLATION

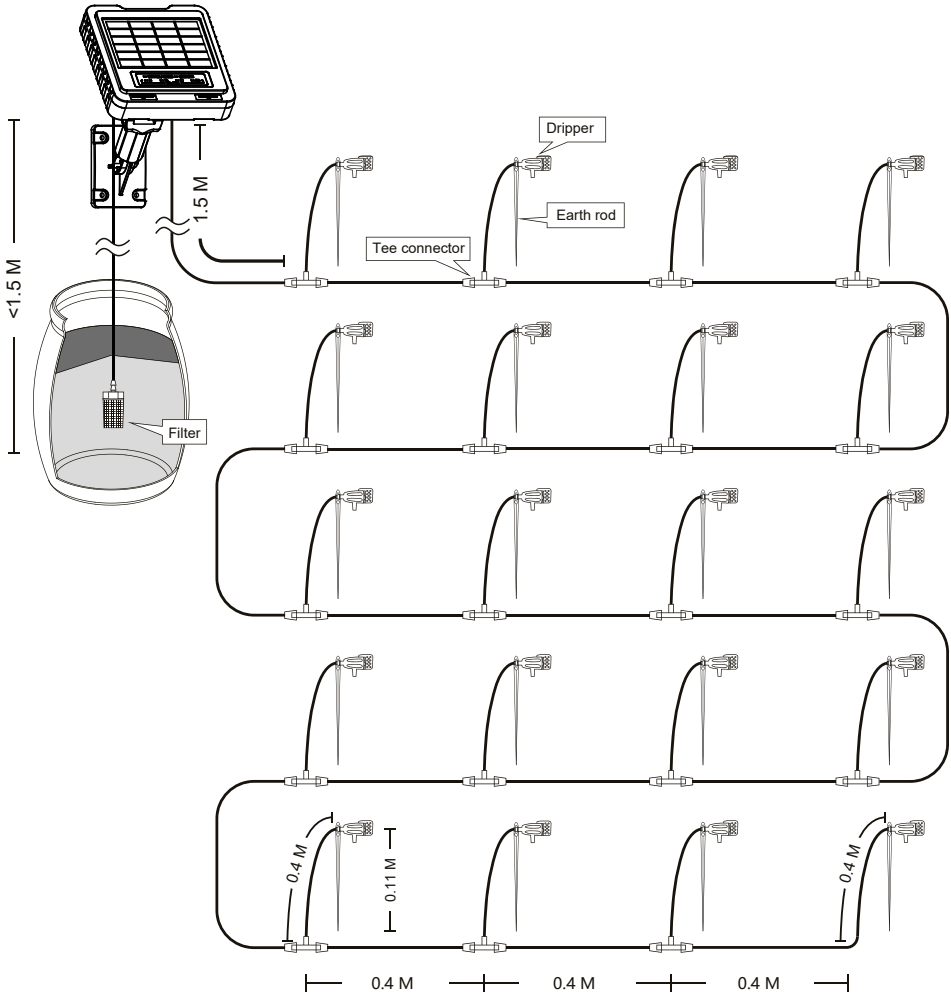


Figure 1:Recommended system installation schematic

1) Unpack all components carefully.
2) Find a sunny place that is shadow-free all day long for the placement of the solar irrigator unit. It can be installed on a wall or fence by the enclosed bracket or even on the ground by the enclosed ground spike as shown in **Figure 2**. The water inlet on the back of the irrigator unit should be significantly higher than the maximum possible water level of the water reservoir but no more than 1.5 meters higher than the bottom of the water reservoir (referring to **Figure 1**: Recommended system installation schematic).The location should be able to avoid the irrigator unit to get dipped into water when raining.

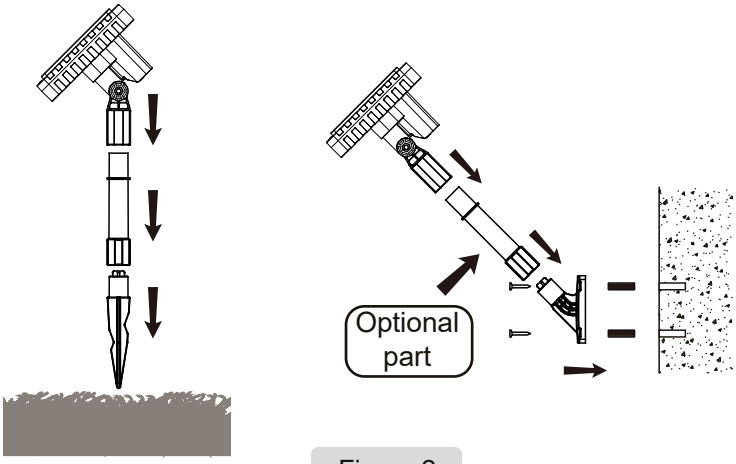


Figure 2

3) Point the solar panel towards the midday sun to maximize its exposure to the sunlight throughout a day as shown in **Figure 3**. Lock the joint by tightening the hex socket nut with the enclosed allen wrench when needed.

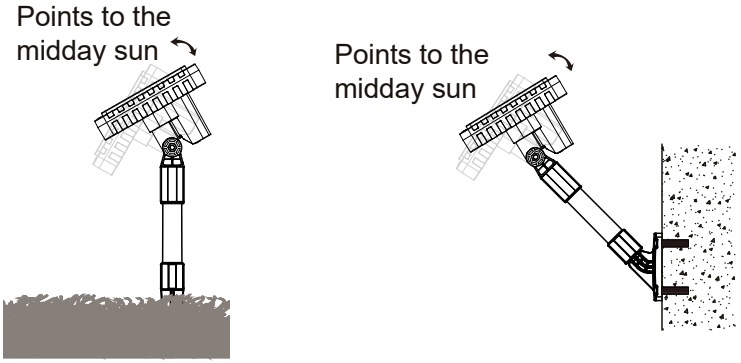


Figure 3

4) The solar panel is used as a photosensor to automatically start the system operation once a day in the morning. To avoid misoperation, the solar panel should not be exposed to any other light source except sun light (referring to **Figure 4** and **Figure 5**).

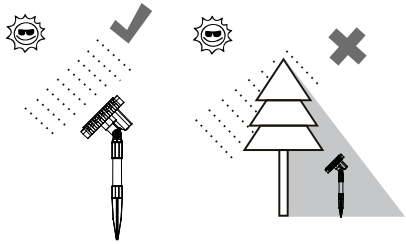


Figure 4

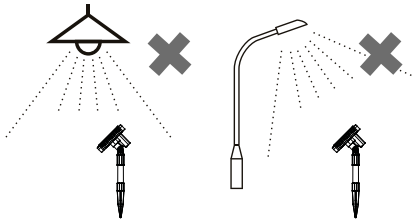


Figure 5

5) Roll out the water hose, estimate the distance from the water inlet of the irrigator unit to the bottom of your water reservoir. Cut the hose to a proper length that is long enough to cover the distance. Fit the hose to the water inlet as shown in **Figure 6**. Fit another end of the hose onto the connector of the filter.
6) Place the water filter on the bottom of the reservoir.
7) By accessing water from the outlet on the back of the irrigator unit, construct the water supply line with the water hose and tee connectors as per the layout of the plants as shown in **Figure 1**. Make sure the hose is fitted onto the water outlet firmly to sustain water pressure. Regularly, each plant needs one tee connector for water access, if possible, place the tee connectors near the plants for easier water access. The last tee connector can serve two plants.

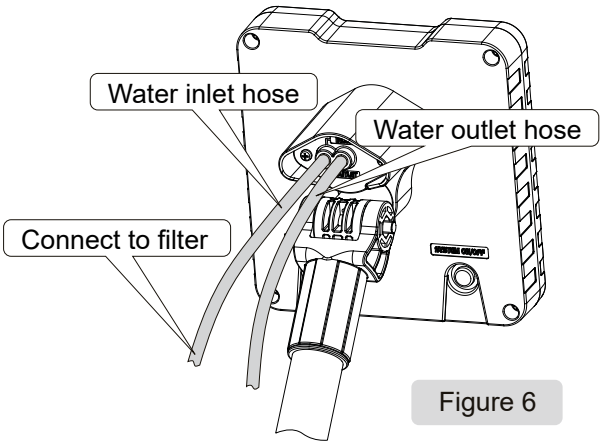


Figure 6

8) Install drippers near the plants to be watered with the help of earth rods as shown in **Figure 1**. The flow rate of the dripper can be adjusted by the knob on its top to cater the need of the plant it irrigates.
9) Connect each dripper to the nearby tee connector with a hose cut from the water supply hose.
   ***Note: The hose is made of plastic, it could be hardened in winter and be difficult to join with connectors and line straight. Soften the hoses by hot water when needed. Hot water brings no damage to the hoses, take care to avoid being scalded.**
   Never heat the hoses with fire.

4. OPERATION

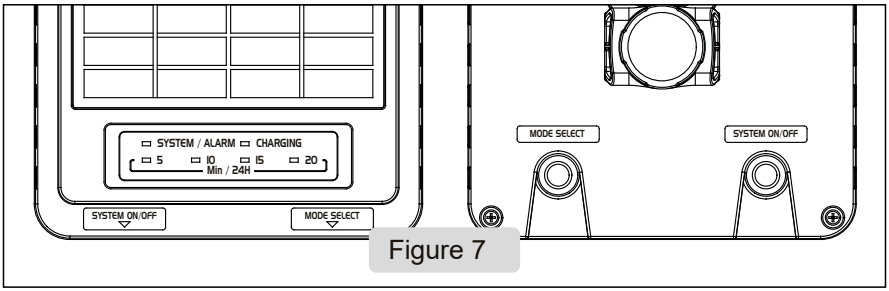


Figure 7

1) Turn on the irrigator unit by the **SYSTEM ON/OFF** switch on the back of the irrigator unit and the **SYSTEM / ALARM** indicator on the panel will light as shown in **Figure 7**.
   SYSTEM / ALARM indicator could be in one of the below status:
   Green: The system is ready for operation.
   Red: The battery is flat, it needs to be charged in sun light.
   Flashing Red: No water in the reservoir, fill the reservoir with some water.
2) Press the **MODE SELECT** button on the back of the irrigator unit, the indicator of a working mode will flash in green. Repeatedly press the **MODE SELECT** button to roll the flashing green indicator to your desired working mode and stay there. The flashing green indicator will stop flashing in 3 seconds, which means the related working mode is being selected successfully. After a mode is selected, the system will conduct a test operation for a duration defined by the mode.The working mode can be changed at any time by conducting the same operation.
3) The available working modes differentiated by duration of each watering are: **5 minute, 10 minute, 15 minutes and 20 minutes**. The system will irrigate the plants once a day when solar panel feels the sun light in the morning for a certain minutes defined by the selected working mode.
4) The **CHARGING** indicator lights in **Yellow** when battery is being charged by the

solar panel. Please be noted that the solar panel will keep charging the battery until fully charged as long as it is exposed to the sunshine even when the system is off and the **CHARGING** indicator blacks out.

5) The **ALARM / SYSTEM** indicator flashes **Red** when there is no water sucked into the irrigator unit within 4 minutes. Fill the reservoir with some water.
6) The solar irrigation system is now ready to operate.

Average daily watering volume vs. number of drippers and working modes

Mode	**5 min.**		**10 min.**		**15 min.**	
Watering volume (Liters)	1 dripper	20 drippers	1 dripper	20 drippers	1 dripper	20 drippers
	0.09	1.85	0.19	3.70	0.28	5.55
Mode	**20 min.**					
Watering volume (Liters)	1 dripper	20 drippers				
	0.37	7.40				

5. CAUTIONS

1) Any altering of the product itself or changing of the components voids warranty.
2) The irrigator works only with water(never above 40℃), especially keep it away from flammable liquids.
3) Do not put any unresolvable particles into the water reservoir, the unresolved particles could block the filter.
4) Keep the irrigator in a frost-free place in winter.

6. MAINTENANCE AND TROUBLE SHOOTING

1) If the **ALARM** indicator flashes **Red**, fill the reservoir (Referring to **Figure 8**).

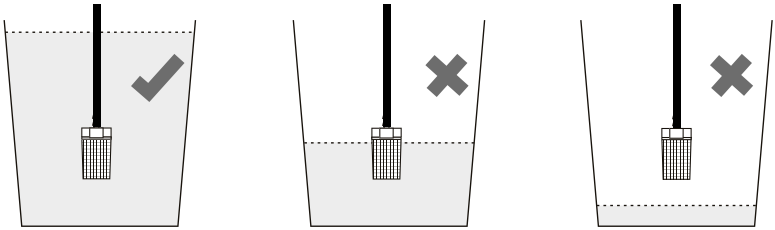


Figure 8

2) To ensure the irrigator works reliably and robustly, clean the filter after a period of operation as shown in **Figure 9**, wash every part to clean the desbris.
3) If there is no water come out of a dripper, check and clean all parts of the dripper as shown in **Figure 10**.

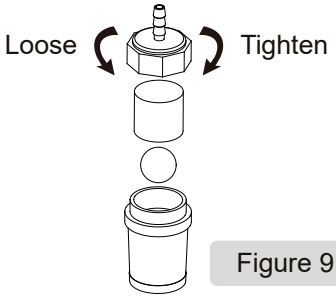


Figure 9

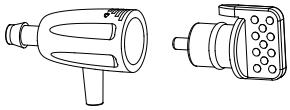


Figure 10

4) If the system always stop working after a few cloudy days in a row, and the battery is out of its service life, replace the battery with a new one (Referring to **Figure 11**).

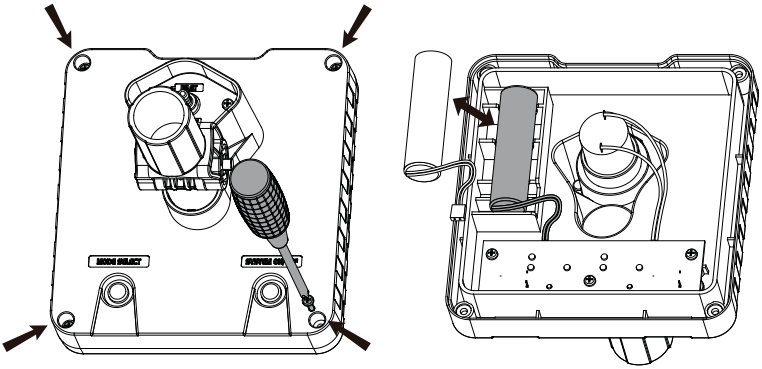


Figure 11

4) If the battery is not charged in the day time of a sunny day (**CHARGING** indicator does not light), check and make sure the solar panel has full exposure to the sun light.

7. TECHNICAL DATA

Maximum quantity of drippers connected	20 PCS
Suitable irrigating area	4 to 8 SQM
Solar panel	1 W / 6 V
Battery	Li-Fe, 3.2 V, 1000 mAh
Operating voltage	3.2 V
Pump pressure	0.2 Mpa
Max. daily watering volume per dripper	0.37 Liters per day
Max. daily watering volume all drippers	7.4 Liters per day