

# ***SIDEK***

## **SOLAR CIRCULATION PUMP AND CONTROLLER**



# Solar Circulation Pump and Controller

*Closed System*

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Ensure that the system is completely filled with water before turning on solar circulation pump. Damage to the pump will occur if the pump is operated with no water in the system. Damage caused by operation without water will void warranty.



The plug pack providing power for the solar circulation system must be connected to a constant 240 volt power supply at all times. The pack supplied with the system is the only one to be used with the system.

*This solar circulation system is controlled by a microprocessor which is connected to various sensors. When the processor senses a set temperature differential it activates the pump to circulate the water through the collectors or system dependant on the model.*

### ***Solar Circulation***

**Normal operation:** When a temperature differential between the collectors and the bottom of the hot water system is reached, the microprocessor will activate the circulation pump which will circulate the water through the system. The cooler storage tank water will pass up into the collectors and the warmer collector water will return into the storage tank.

The pump will continue to run until the lower temperature differential is observed (See Chart for the pump on and off temperature differentials).

**Over-temperature mode:** The processor shuts down to prevent the water in the storage vessel exceeding 76 degrees to prevent activation of the thermostat cut out and release of very hot water from the Pressure and Temperature Relief valve.

**Freeze protection mode:** When the water in the collectors approaches 4°C the microprocessor will activate the pump which will circulate a small amount of water to prevent the collectors from freezing. Freezing water expands and this can lead to premature collector failure (due to a burst copper collector pipe). The micro processor will control the pump and maintain a temperature of 4 degrees in the collector to prevent the collector from freezing.

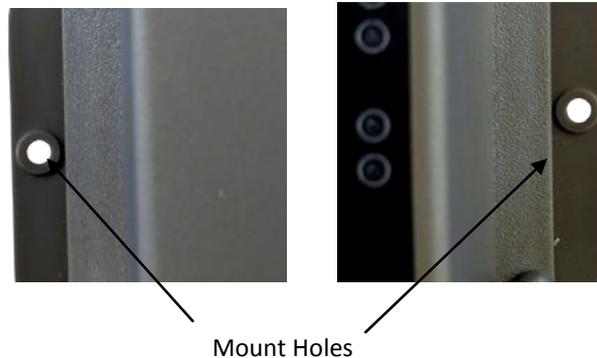
### ***Hot Water Circulation***

(Maintaining hot water to your taps) (Hot water recirculation system)

**Normal operation:** When a temperature below 30 degrees is detected the microprocessor will activate the circulation pump which will circulate the warm water through the system until 40 degrees is detected. The pump will draw warm water from the storage tank into the system and return the cooler water via the return line to the storage tank.

# Mounting

The box must be mounted in the vertical position using the mounting holes on either side of the case.



This will place the pump in the correct position for operation.



## Start up

- Fill the system with water, check for leaks.
- Ensure that any air trapped in the system has been removed. An air bleed from the system via manual or auto air bleed valve installed on the highest point of the collectors will expel air from the system.
- Open any isolation valves and any other valves that may have been closed during installation
- Energise the system by switching the power to the transformer on.
- The controller will operate the pump for 5 seconds after 5 second delay to check for circulation. After this the microprocessor will assess the system and operate in the required mode.
- If you hear noise initially, this should abate after a very short time while air is purged from around the impeller.
- If the noise does not disappear or decrease significantly, purge the system again.

# Electrical

## ***Plug Pack***

(12V DC, 2 AMP)

The plug pack must be connected to a constant 240V source located close to the unit and out of the weather. Ensure connection complies with all regulatory standards. **The system MUST be full of water before the plug pack is powered to prevent damage to the pump. Damage caused from the pump operating without water is not covered warranty.**

## ***Wiring Looms***

### **Collector Sensor (Yellow)**

The collector sensor (the long lead with yellow end marking) should be pushed all the way into the end of the sensor well in the uppermost section of the collectors. Once in sensor wire in position the end of the tube should be sealed with a small 'dob' of silicone sealant, this will secure the sensor wire and seal off the tube.

Be careful not to damage or cut the cable or the system will not be able to measure the temperature in the collectors and fail to operate correctly.

The solar collector sensor wire (yellow tagged) is connected to the yellow tagged connector protruding from the base of the pump and controller box.

### **Cold Sensor (Blue)**

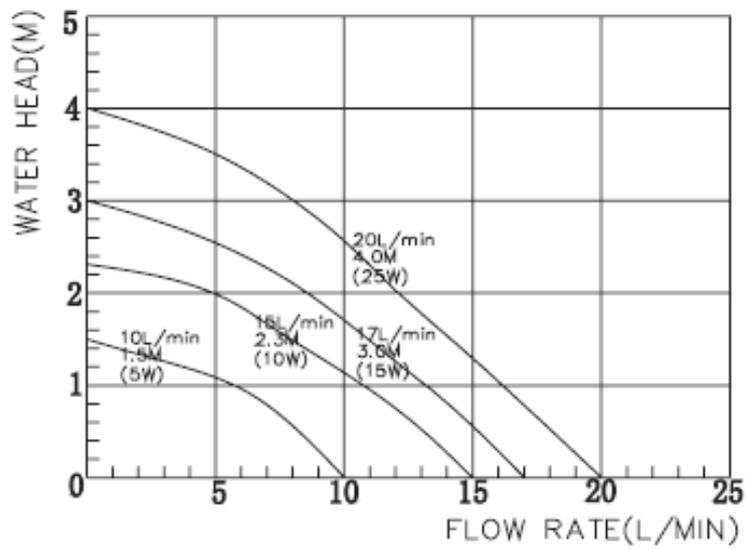
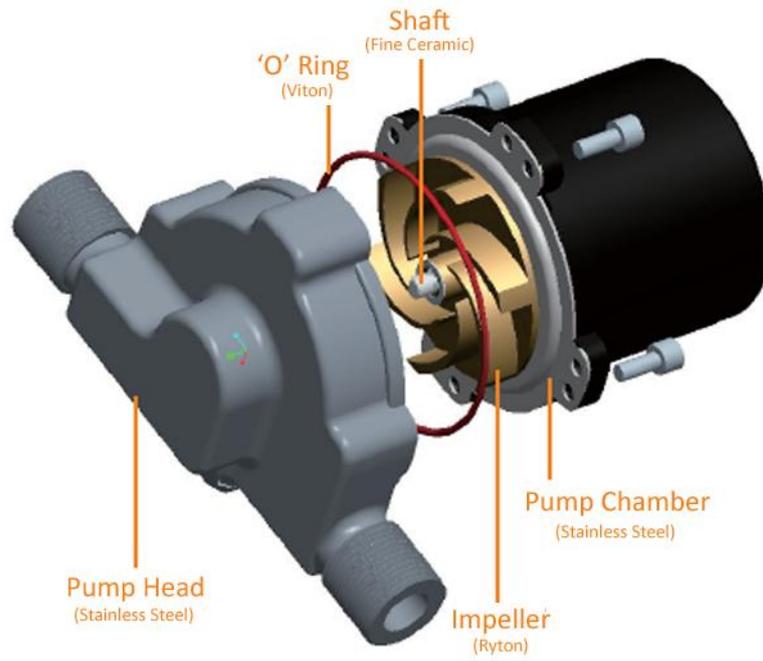
The cold (the short lead with blue end marking) should be pushed all the way into the end of the cold sensor well. Once in sensor wire in position the end of the tube should be sealed with a small 'dob' of silicone sealant, this will secure the sensor wire and seal off the tube.

Be careful not to damage or cut the cable or the system will not be able to measure the temperature in the cold section of the system.

The cold sensor wire (blue tagged) is connected to the blue tagged connector protruding from the base of the pump and controller box.

Be careful not to damage or cut the cable or the system will not be able to measure the temperature in the collectors and fail to operate correctly.

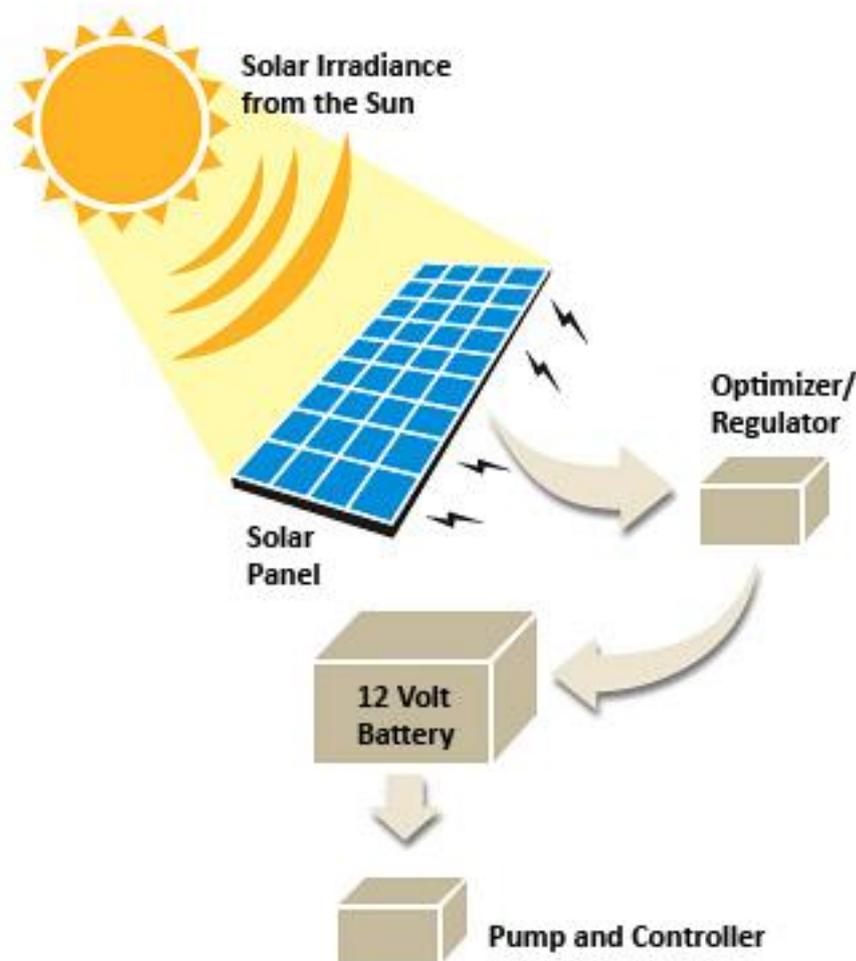
# PUMP



## Photovoltaic Operation

### Battery Backup Connection

The recommended photovoltaic connection is via a battery back up system. The pump and controller are powered via the battery and the photovoltaic panels maintain the charge of the battery. . **The system MUST be full of water before the controller is powered to prevent damage to the pump. Damage caused from the pump operating without water is not covered warranty.**



### Direct Panel Connection

The pump and controller can be directly coupled to a 12 volt regulated photovoltaic collector. This is not ideal connection method as there will be no frost protection or indication at night. The system will also regularly enter start up mode due to power fluctuations caused by cloud cover.

**Damage caused from uncontrolled power supply will not be covered by warranty.**

## Temperature Indication

The Pump and controller unit come with an inbuilt temperature gauge. This will indicate ( $\pm 5^{\circ}\text{C}$ ) the water temperature currently stored in the system.

## Technical Data

Model	No Frost	Frost Protection	Circulation
Pumping Temperature Differential	9 <sup>0</sup> C Pump On 5 <sup>0</sup> C Pump Off	9 <sup>0</sup> C Pump On 5 <sup>0</sup> C Pump Off	30 <sup>0</sup> C Pump On 40 <sup>0</sup> C Pump Off
Over Temp Off	76 <sup>0</sup> C	76 <sup>0</sup> C	None
Number of Sensors	2	2	1
Gauge Temperature Range	40 <sup>0</sup> C,50 <sup>0</sup> C,60 <sup>0</sup> C,70 <sup>0</sup> C (Below 40 <sup>0</sup> C no lights)	40 <sup>0</sup> C,50 <sup>0</sup> C,60 <sup>0</sup> C,70 <sup>0</sup> C (Below 40 <sup>0</sup> C no lights)	20 <sup>0</sup> C,25 <sup>0</sup> C,30 <sup>0</sup> C,35 <sup>0</sup> C (Outside of these temps no lights)
Temp off set	5 <sup>0</sup> C	5 <sup>0</sup> C	0 <sup>0</sup> C
Start up cycle time	10 Seconds	10 Seconds	10 Seconds
Collector Sensor Colour	Yellow	Yellow	
Cold Sensor Colour	Blue	Blue	
Max Pressure	1000kPa	1000kPa	1000kPa
Pump Draw Max.	0.41, 0.83, 1.25, 2.1A	0.41, 0.83, 1.25, 2.1A	0.41, 0.83, 1.25, 2.1A
Pump Power	5,10,15 or 25 Watts	5,10,15 or 25 Watts	5,10,15 or 25 Watts

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WARRANTY: 12 months from date of purchase for manufacturing faults.