

SUNROTOR
Solar Products
www.sunrotor.com

SunRotor Solar Pump Installation Guide

SunRotor Solar Pumps
304 W. 12th St.
Elk City, OK 73644
866-246-7652
FAX: 580-225-1120

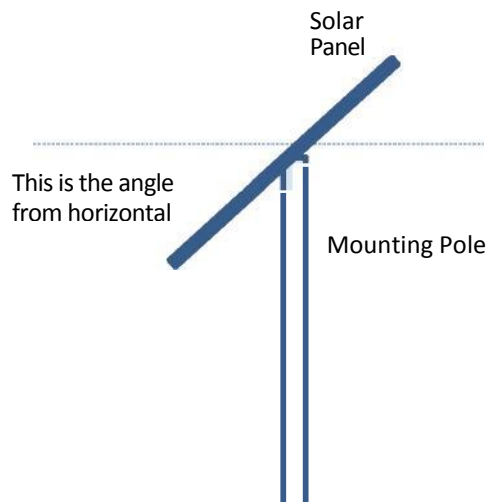
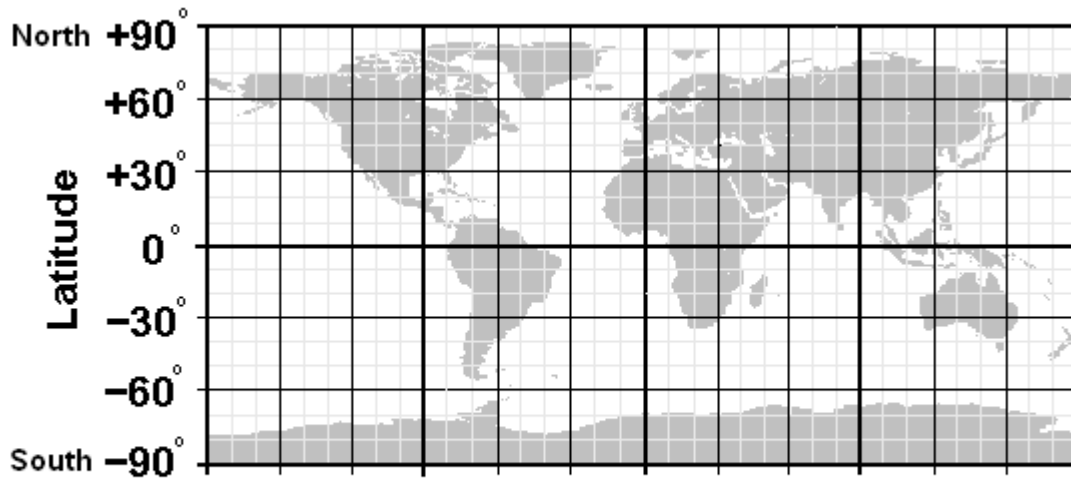
Introduction

To gain the highest level of service from your pump system please carefully read and understand the following installation Guide. Any additional questions concerning installation, operation, or trouble shooting can be answered by contacting your local SunRotor Dealer or by calling SunRotor Technical Service directly at 1-866-246-7652.

STEP 1

Solar Panel

Mount the solar panel facing due south (north in the southern hemisphere). Your latitude is the mounting angle from horizontal. Use map below to determine proper mounting angle for your location.



STEP 2

Measure Well

Measure total well depth and depth from surface to water. Determine set depth for pump. 5 feet from bottom of well is recommended. Adequate water should be available above pump intake.

STEP 3

Wire Layout

Lay pump close to well. String pipe, wire, low water sensor, and safety rope out on ground.

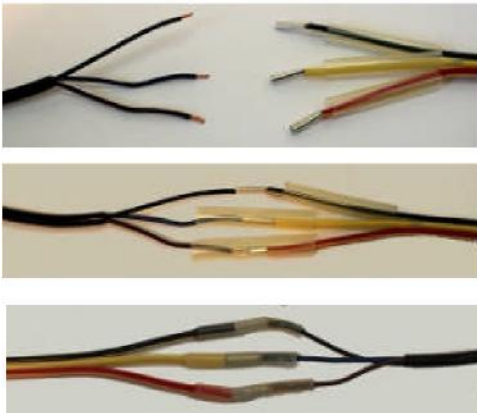
STEP 4

Wire Splice

Splice pump wires and low water sensor wires using adhesive filled heat shrink tubing. Standard heat gun or torch can be used. Start heating tubing in the middle and work outward. Adhesive should be seen oozing from each end of the shrink tubing to ensure a good seal.



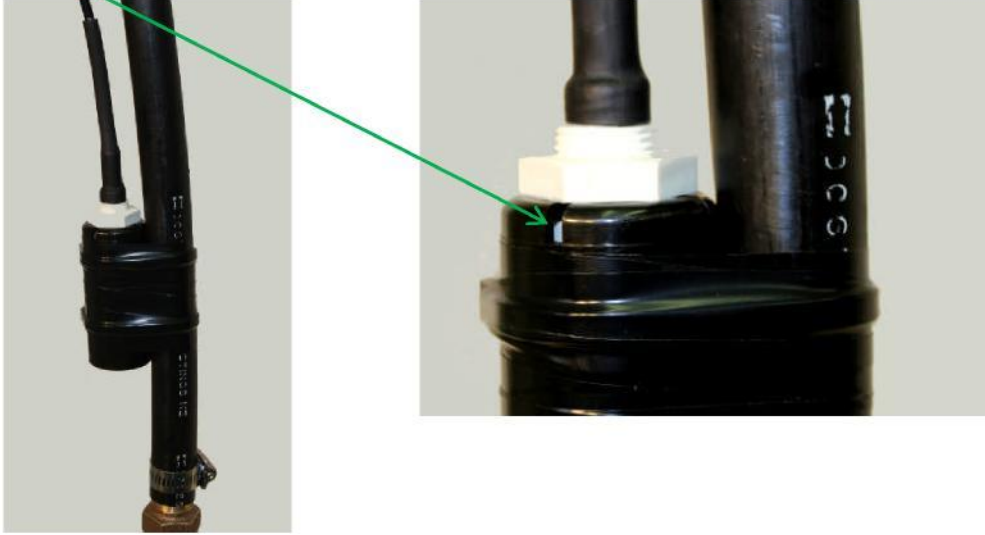
Use caution when heating tubing. Keep heat source moving to prevent burning tubing or wire insulation.



STEP 5

Low Water Sensor

Install low water sensor 6-18 inches above pump. Secure to pipe using cable ties. Wrap cable ties and low water sensor with high quality waterproof electrical tape. Do not cover vent holes in top of low water sensor.



STEP 6

Secure Wire

Secure all wires to pipe using cable ties or pump wire tape. Space cable ties or pump wire tape approximately 10 to 15 feet apart. Wrap cable ties, wire, and pipe with high quality water proof electrical tape. For additional security tie safety rope to pump using several knots. Secure safety rope to pipe with 1 cable tie located in center of total pipe length.

STEP 7

Well Seal

Attach well seal to top end of pipe at predetermined set depth. Route wires through opening in well seal. Loosely tie safety rope to eye hook on well seal. (Rope will be re-tightened after pump is lowered into well.)

STEP 8

Set Pump

Lower pump into well. Pull safety rope slightly tight. Tie rope. Set well seal into casing and tighten 4 nuts in top of seal. Run wires on top side of well seal through conduit (if applicable) at this time. Attach conduit to well seal. Other end of conduit attaches to controller

STEP 9

Mount Controller

Mount controller to solar panel mast pipe directly below solar panel. Controller should be on the side of the pole that is opposite the sun to avoid direct sunlight. Secure to pipe using controller mounting hardware.



STEP 10

Controller Wiring

Route all wires into controller enclosure. Connect conduit to controller (if applicable). Conduit is recommended. Connect wires to terminals according to wiring diagram (page 6). Ensure that all openings are sealed to avoid bug infestation.



Before connecting power wires to the controller, verify that the open circuit voltage does not exceed the open circuit voltage maximum listed on the controller (100 Volts DC). Over voltage situations will damage the controller beyond repair.



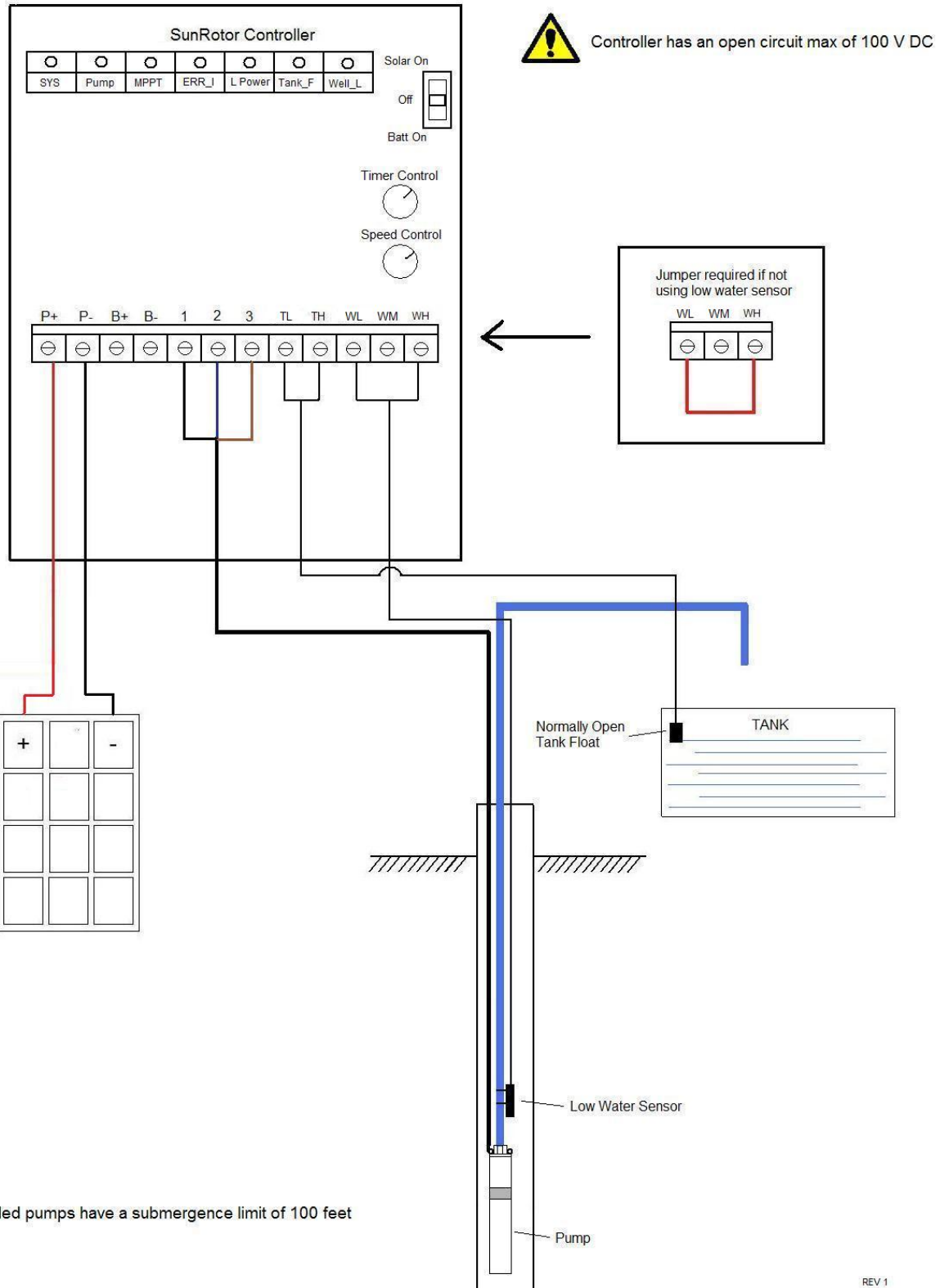
The power wires from the solar panels are marked positive and negative. It is very important that the positive and negative wires do not get reversed when connected to the controller. If you are unsure of the polarity, confirm with a voltmeter or contact SunRotor technical assistance at 866-246-7652.

STEP 11

System Test

Make sure adequate sun is available. Slide on/off switch up to solar operation. System light should come on (green). Pump light should come on after 20 seconds (green). MPPT light should come on and flash during good sunlight conditions (green). Water should be pumping into tank. If water does not start pumping within 2-3 minutes contact your dealer or SunRotor Customer Service for assistance.

SunRotor Wiring Diagram (Solar Direct Operation)



Operation

Operation of the system is started by switching the selector switch up to the “solar on” position. This switch is located in the upper right hand corner of the control box. This switch allows you to select between solar operation, system off, and battery operation. (If a battery system is installed, please switch the system to battery operation.)

The indicator lights located in the upper half of the control box displays the status of the pump system. Below is an explanation of each indicator light and its function.

System (solid green)

This indicator will light up when the switch is in the on position and power is available to the controller.

Pump (solid green)

Motor is running. This indicator will come on 20 seconds after the system is switched on if there is adequate power available and all water level sensors are reading normal.

MPPT (flashing green)

The MPPT (Maximum Power Point Tracking) monitors the power input from the solar panels and adjust the voltage and current to gain the highest performance of the pump. This indicator flashes green to show that the MPPT system is working properly.

ERR_1 (solid red)

Over current. If the pump is drawing high amperage (hard to turn) the over current protection is initiated to protect the pump, motor, and controller. The pump will be shut down until the system is reset. Over current can be caused by pump or motor problems, short in wiring, or blocked piping. Please consult your dealer.

L Power (solid orange)

Low power. There is not enough power to operate the pump. Low sunlight conditions are usually the cause. The system will restart every 4 minutes until adequate power is available.

Tank_F (solid red)

Tank is full. The remote switch is in the closed position (high water level in tank). Pump is shut down until the remote switch returns to the open position (low water level in tank)

Well_L (solid red)

Well Low. Water level in well is below the low water sensor switch. When the low water sensor switch is tripped due to low water, the pump is shut down and a timer starts. The pump will restart when the timer expires. The timer can be adjusted from 0 min to 30 min. Please see timer function section.

Timer Function

The timer function is used to set up a delay time for the low water sensor switch. When the low water sensor switch is tripped, the pump shuts down. The delay time allows the well to recover before the pump is restarted. Otherwise the pump would start and stop repeatedly throughout the day as the water level in the well fluctuates or cycles up and down. Standard setting for the timer delay is 20 minutes. The timer can be adjusted from 0 minutes to 30 minutes depending on the recovery rate of your well. Simply turn the timer knob to the desired minute setting (clockwise for more time, counterclockwise for less time). The knob can be adjusted with the controller on or off.

Speed Control

The speed control knob adjusts the RPM of the pump. The standard position is set to maximum RPM. (Turn clockwise for maximum speed, counterclockwise for minimum speed). Speed control is useful in a low producing well. Slowing the pump output to match the production of the well prevents over pumping the well. This gives a more consistent flow of water and prolongs pump life due to less start ups. Speed control can be adjusted with the system on or off.



Turning the speed control to the most counterclockwise position will stop the pump. Settings below 30% can cause the pump to shut down due to low power. If this occurs, simply turn the speed control up slightly and restart controller. It is recommended that the speed control is adjusted with the pump running to ensure adequate water flow.