



RPAL MPPT

360W RemotePro®

- Wireless Base Stations and Client Devices
- Surveillance Cameras
- Remote Control
- Remote Lighting
- Off Grid Electronics



Congratulations! on your purchase of the RemotePro® Remote Power System. Please take a moment to review this Qwik Install Guide before use.

Key Features: Industrial Strength, 48V 60A MPPT solar controller, Outdoor Weatherproof Enclosure, 720-1440Ah Battery, 720-2160W Solar.

Safety: For your own protection, follow these safety rules.

- **Perform as many functions as possible on the ground**
- **Do not attempt to install on a rainy, windy or snowy day or if there is ice or snow accumulation at the install site or if the site is wet.**
- **Make sure there are no people, pets, etc. below if you are working on a roof or ladder.**



Recommended Tools: Phillips and Small Flat Blade Screwdrivers, 6mm Hex key and 13, 19, 27, 34mm Wrenches



Please help preserve the environment and return any used batteries to an authorized depot

Qwik Install

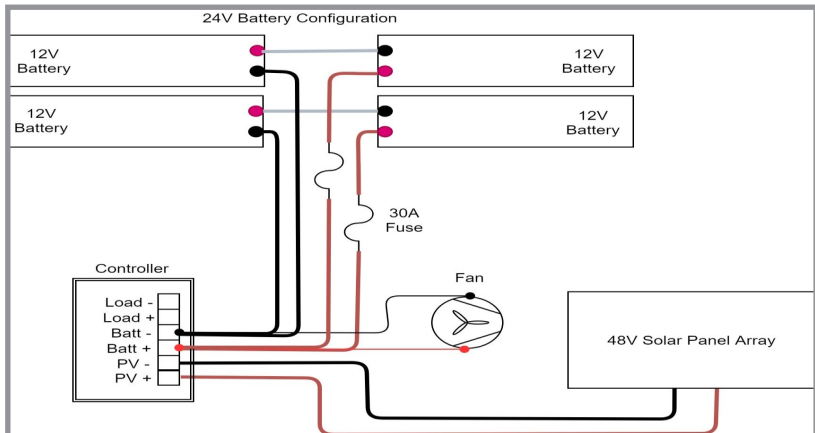
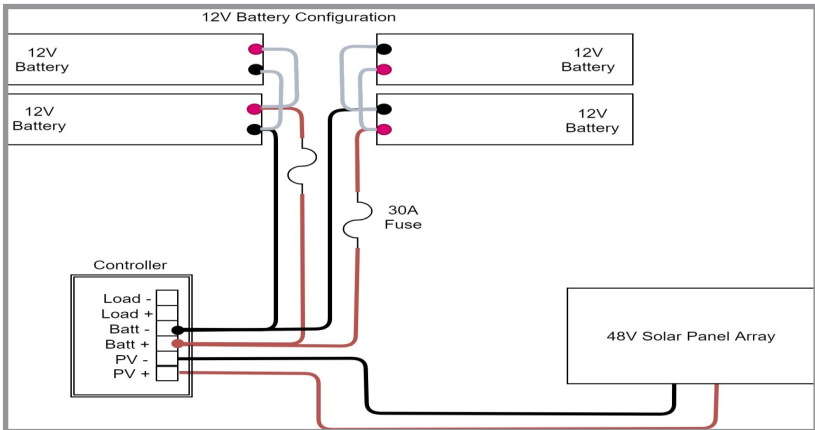
STEP 1: Select install location where southern sky has no obstructions that could cause shading on solar panels.

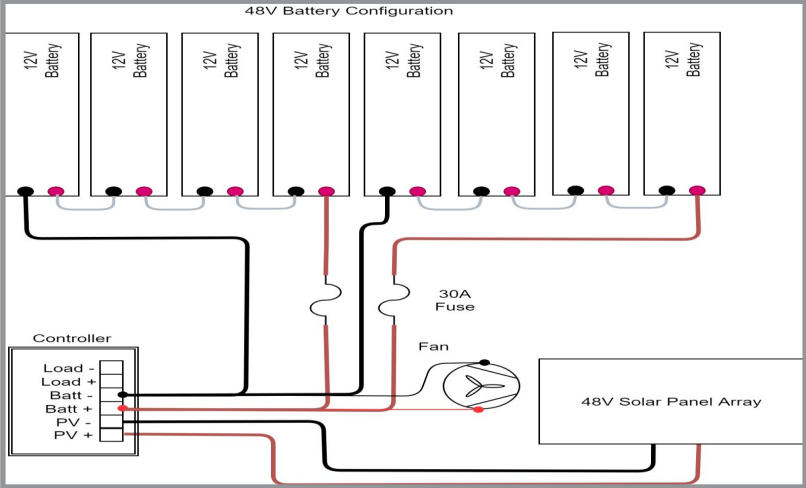
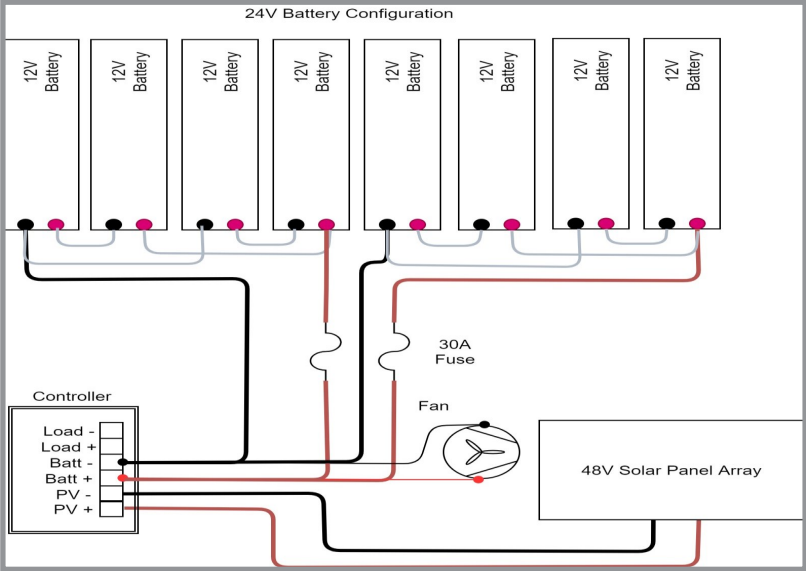
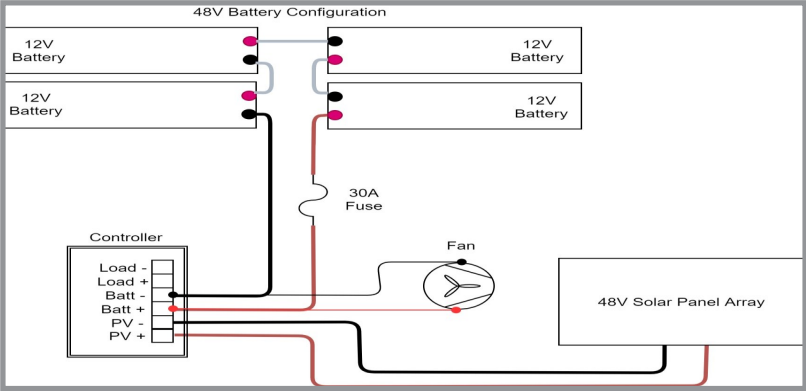
STEP 2: Pour a foundation big enough to hold solar mount anchors and also provide level support for battery box. See detailed instructions in solar mount instructions.

STEP 3: Assemble solar array with mount using solar mount instructions.

Warning: Batteries are very heavy, always use 2 people when handling the batteries.

STEP 4: Place battery box under solar panels. Install 4-8 batteries in the box. Use handles to lower batteries into the box. **Remove the battery fuses from the battery cables before proceeding.** Connect Batteries in series or parallel configuration depending on your preferred voltage. See diagrams below.



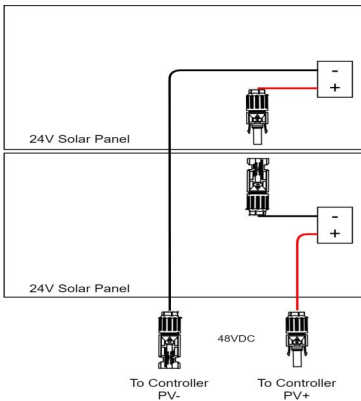


STEP 5: Install DIN rail to enclosure using the two screws provided. Install MPPT solar controller to DIN Rail.

STEP 6: Find the temperature sensor cable that came with the MPPT Solar Controller and place it on or near the batteries. Connect the battery cable(s) to the solar controller battery inputs and then to the batteries making sure to observe the proper polarity.

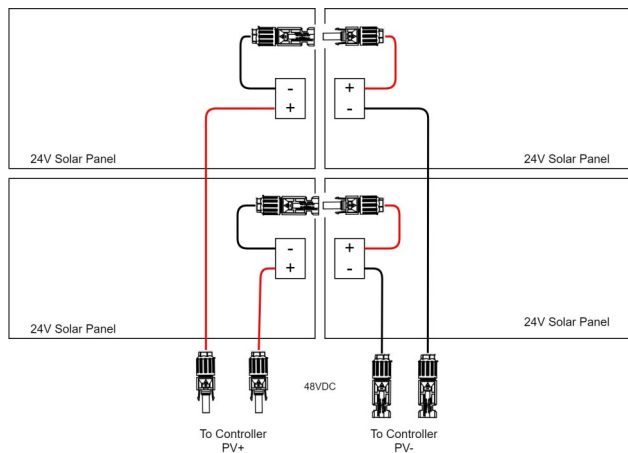
STEP 7: Install the cable glands in the back of the enclosure and route the long solar panel cables through the cable gland and connect to the solar controller (PV) inputs. You can shorten the cables as necessary for a cleaner install. You can also lengthen the cables by adding additional lengths of 12AWG cable. Please note that the longer the cable, the more cable loss you will see.

STEP 8: Connect the solar panel pairs in series (Positive to Negative) by plugging the positive from panel 1 to the negative of panel 2. **Don't connect the 20' solar cable to the solar connectors until the MPPT solar controller is connected to the batteries.** The connectors are keyed for polarity so they cannot be connected incorrectly.

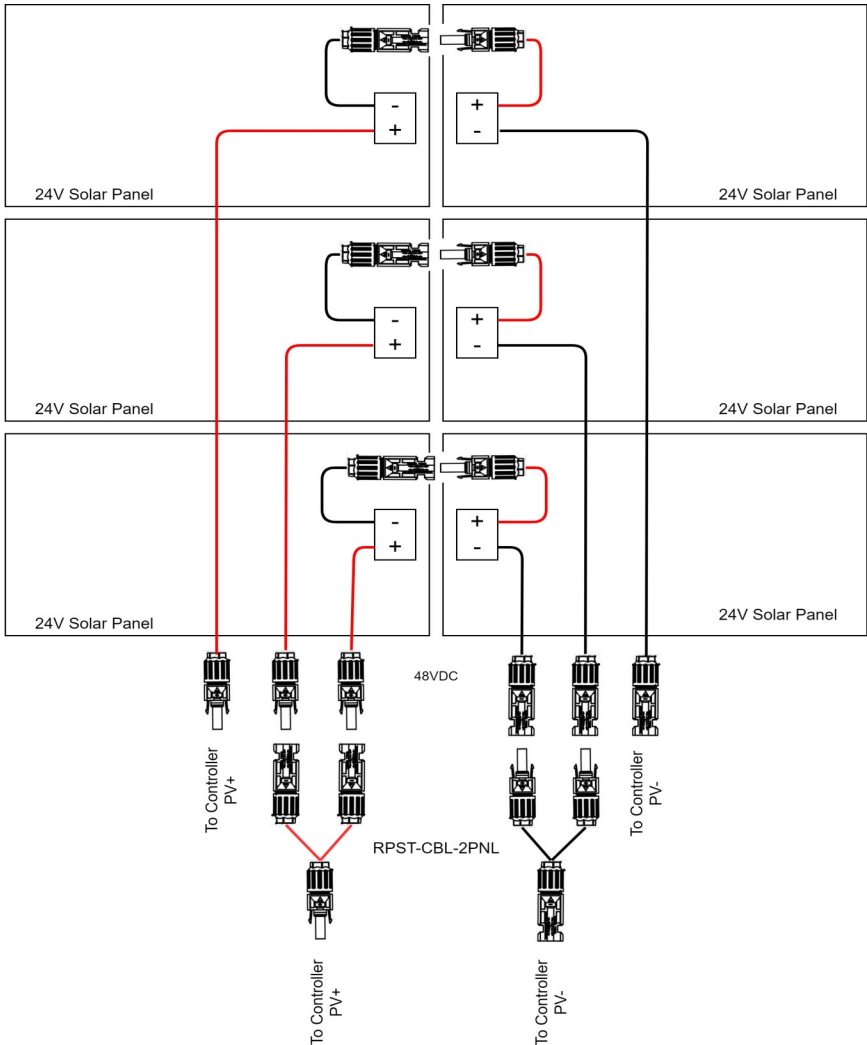


2 Panel Configuration

4 Panel Configuration



6 Panel Configuration



STEP 9: Once the batteries and 20' solar panel cables are connected to the Solar Controller, connect the batteries by plugging in the fuses on the battery cables. The solar controller will power up. Now connect the 20' cables at the solar panels by plugging in the connectors.

Warning: Battery should always be connected first and disconnected last from the controller.

STEP 10: Plug the temperature sensor to the Temp Sensor input on the MPPT Solar Controller. Refer to MPPT Solar Controller user guide

for additional information

STEP 11: The vent fan is capable of running at 24V or 48V. Connect to the controller battery connection or direct to batteries.

STEP 12: Tighten the cable glands on the wires to make weatherproof connections. Plug unused holes using the supplied hole plugs. To plug an unused cable gland, cut a short piece of wire, insert into the cable gland and tighten. If desired, attach the enclosure to the solar mount pole using chain or cable for security.

STEP 13: You may want to put a fine screen over the vent holes on either end of the enclosure to keep out insects. Window screen works well. Be sure to secure all cables so they won't move in the wind. All cable connectors will be protected by being located under the solar panels.

TECH CORNER

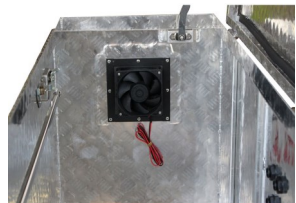
Additional Information you may find useful

- 1. CONTROLLER:** The MPPT solar controller is capable of 60A into the solar input and battery output. The load output is capable of switching up to 30A. The controller is a positive ground type so in a typical application the batteries should be floating and not grounded. Refer to the controller user guide for specific information about the controller operation.
- 2. Fuse:** There is a fuse in-line in the battery cables. If fuse is blown there was some sort of short in the battery connection and the controller will appear dead. Replace with 3AG 6.3 x 32mm 30A Slo-Blo fuse..
- 3. VENTING:** The enclosure is vented thru a thermostatically (45C) controlled fan and vents on the ends of the enclosure. You should add the checking/cleaning of the filters during any routine maintenance cycle but at least annually.
- 4. BATTERY MAINTENANCE:** The batteries used in the RemotePro® systems don't require any maintenance. They should last up to 5 years in normal use. **Note: Never store batteries for any length of time in a discharged state or it may kill the battery, especially during cold weather. Always fully charge before storage.**
- 5. SOLAR PANEL TILT:** There is a solar panel tilt calculator at the TyconSystems website calculators.tyconsystems.com. We recommend using a fixed tilt and setting to optimize for winter sun. The panel should face South if you are in the Northern Hemisphere and face North if you are in the Southern Hemisphere. An easy way to calculate winter tilt is to take your latitude and add 15 deg.
- 6. BATTERY OVERDISCHARGE:** We highly recommend hooking all

equipment loads to the controller load outputs. This output will disconnect the loads if the battery voltage drops below the preset level and this will protect the battery from over-discharge. If batteries get completely discharged because the equipment was connected directly to the battery, you will reduce the battery life and you will most likely need to charge them with a good quality 10A automotive battery charger. Once they are back to a normal operating range, the integrated charge controller will maintain the charge. Don't charge batteries using an automotive charger for longer than 8hrs or you may damage the battery.

7. TROUBLESHOOTING:

- A. ***The display on the solar controller looks fine but the batteries aren't charging?*** The solar voltage should be higher than the battery voltage. Check to make sure Solar Panels are wired in series for 48V configuration.
- B. ***There is no voltage output?*** If battery voltage is too low the charge controller will turn off the load outputs. If load current is too high the load output will turn off automatically.
- C. ***Why is my solar panel voltage so high?*** Open circuit voltage on a 48V panel array could be as high as 95V. This is normal.
- D. ***My system turns off at night and comes back on in the morning?*** This is a sure sign that the solar panels and/or battery capacity can't support the load. You should measure your actual load and recalculate to make sure you have adequate solar and battery capacity. Make sure there is no shading of solar panels during the day. Clean panels. Check tilt.
- E. ***There is no power at the solar controller?*** Check the battery cable fuse. Measure battery voltage at the solar controller it should be >9V. If less than 9V then batteries will need to be charged with an external charger to bring the voltage up to normal operating range of the controller.



SPECIFICATIONS

Subject to change without notice

	RPAL
Battery Capacity	720Ah - 1440Ah
Rated Load @ peak sun hrs	Up to 360W @ 6hrs sun (RPAL48M-14-2160 system)
Reserve Power @ Rated Load	>24 hours
Load Volts/Current(DC)	LoadV=BattV , 30A Max
Battery Voltage (DC)	12V / 24V / 48V
Battery Type	Valve Regulated Sealed Lead Acid / Pure Lead Carbon AGM
Battery Life	5 Years
Controller Type	12/24/48V 60A Temp Compensated MPPT Battery Charge Controller
Over-discharge protection	11V / 22V / 44V
Over-discharge recovery volts	12.5V / 25V / 50V
Controller Self Consumption	<1W Typical
Enclosure Type	Diamond Plate Aluminum
Operating Temperature	-30°C to +60°C

Limited Warranty

The RPAL48 Remote Power System is supplied with a limited 36 month warranty which covers material and workmanship defects. This warranty does not cover the following:

- Parts requiring replacement due to improper installation, misuse, poor site conditions, faulty power, etc.
- Lightning or weather damage.
- Physical damage to the external & internal parts.
- Products that have been opened, altered, or defaced.
- Water damage.
- Usage other than in accordance with instructions and the normal intended use.

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