



RPAL48

155W RemotePro®

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



Congratulations! on your purchase of the RemotePro® 155W Remote Power System. Please take a moment to review this Qwik Install Guide before use.

Key Features: Industrial Strength, Manageable, 24VDC and 48VDC Output, 7 Gigabit Passive PoE ports, 2.25A Aux Port, 48V 20A MPPT Solar, Automated Alerts, Removable Connections.

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

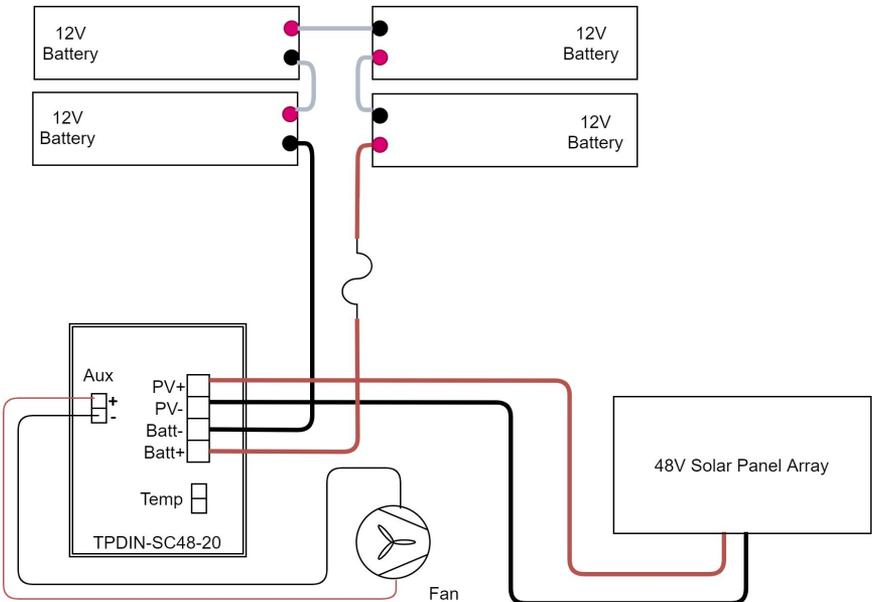
STEP 1: Select install location where southern sky has no obstructions that could cause shading on solar panels.

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 batteries in the box. Use handles to lower batteries into the box. **Remove the battery fuse from the battery cable before proceeding.** Connect all 4 batteries in series configuration (Positive to Negative to Positive...).



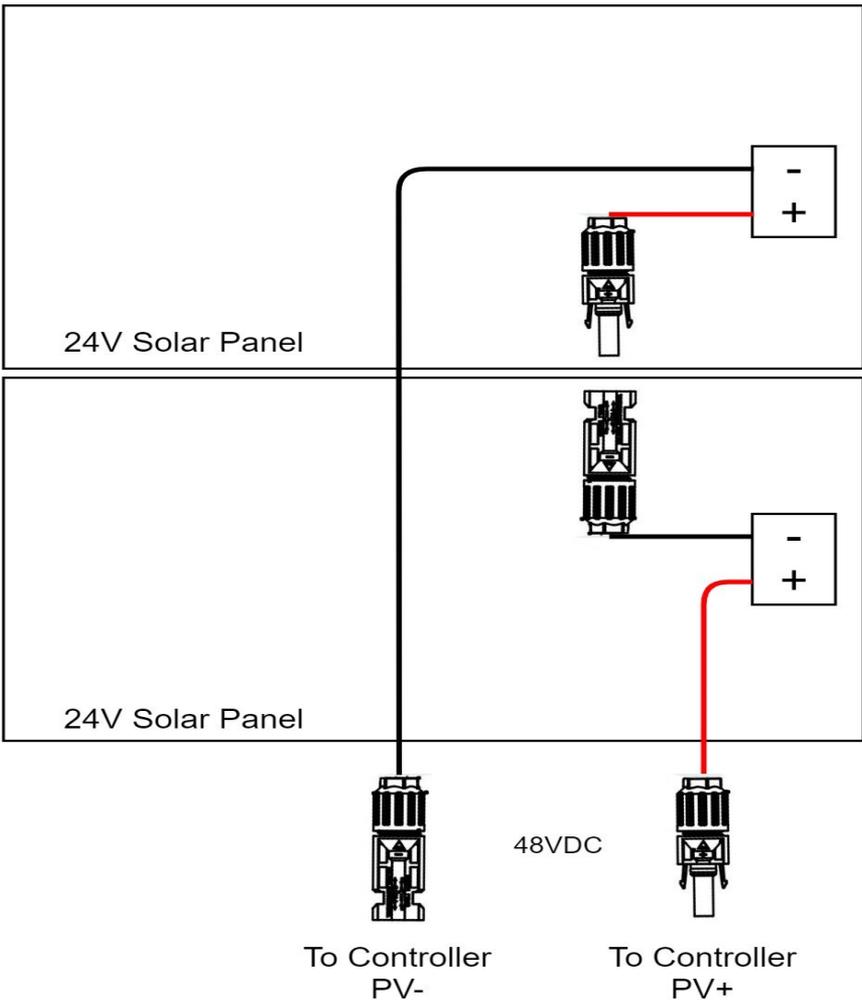
STEP 5: Install DIN rail to enclosure using the two screws provided. Install MPPT solar controller to DIN Rail. Remove the Large Green Connector from the unit.

STEP 6: Find the temperature sensor cable that came with the MPPT Solar Controller and connect the side with the ring lug to one of the batteries positive or negative terminals, it doesn't matter which one. Con-

nect the battery cable to the Large Green Connector 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 large green connector solar (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 panels in series (Positive to Negative) by plugging the positive from panel 1 to the negative of panel 2 and then connect the long 20' solar cable to the remaining positive and negative connectors from the solar panels. The connectors are keyed for polarity so they cannot be connected incorrectly.



STEP 9: Once the batteries and solar panels are all connected and wired to the Large Green Connector, Disconnect PV+ wire and plug the connector to the MPPT Solar Controller until the connector latches click into place. The Battery Charging LED should light up for about 60 seconds. Now connect PV+ to the green connector.



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 the TPDIN-SC48-20 instruction manual for setup and operation of the MPPT Solar Controller.

STEP 11: The vent fan is capable of running at 24 or 48V. Connect to the controller Aux output or directly to the 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 controller with 7 port PoE gigabit switch is designed for use with 48V battery and 48V solar panels. It has a settable low voltage disconnect function to shut down the load power when the battery voltage drops below a pre-defined level. Maximum solar current is 20A. You will need to access the web interface of the controller to setup the various built-in functions. Refer to the controller user guide which came with the controller.
- 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 20A 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.** The solar controller has the ability to do a balance charge on the batteries. You should only use this if you suspect some problem with the batteries. Using balance charge too often will reduce the battery life.

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.

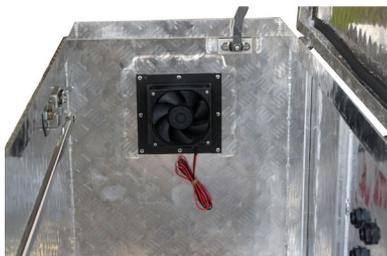
6. BATTERY OVERDISCHARGE: We highly recommend hooking all equipment loads to the controller load outputs. This output will disconnect the loads if the battery voltage drops below the level that is setup in the user interface, normally around 47V and this will protect the battery from over-discharge. 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 lights on the solar controller look fine but the batteries aren't charging?*** The battery voltage and solar panel voltage must match. Check to make sure Solar Panels are wired in series for 48V.
- B. *There is no voltage output?*** If battery voltage is too low the charge controller will turn off the load outputs. This typically happens when battery voltage falls below around 47V.
- 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.

E. There is no power at the solar controller? Check the battery cable fuse. Check the controller 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.

NOTES



SPECIFICATIONS

Subject to change without notice

	RPAL48-720-720
Battery Capacity	720Ah
Rated Load @ peak sun hrs	155W @ 6hrs sun
Reserve Power @ Rated Load	>28 hours
Load Voltage (DC)	24V or 48V 200W Maximum Total Load
Battery Voltage (DC)	48V
Battery Type	Valve Regulated Sealed Lead Acid / Pure Lead Carbon AGM
Battery Life	5 Years
Controller Type	48V 20A MPPT Battery Charge Controller with 7 port Gigabit PoE switch and remote management
Over-discharge protection	45.8V to 47.8 – settable in web interface
Over-discharge recovery volts	48.1V to 49.2V – settable in web interface
Controller Self Consumption	3.5W 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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