RPST12M/24M

RemotePro®

Remote Power System

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

Congratulations! on your purchase of the RemotePro™ off-grid remote power system. Please take a moment to review this Qwik Install Guide before assembly or battery installation. Other instructions come with other components of this kit. Be sure to review all instructions.

DANGER! Avoid Powerlines!
You Can Be Killed!

When following the instructions in this guide take extreme care to avoid contact with overhead power lines, lights and power circuits. Contact with power lines, lights or power circuits may be fatal. We recommend to install no closer than 20 feet to any power lines.

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 when you are working on a roof or ladder.**

Recommended Tools: Phillips Screwdriver, 13mm and 10mm Wrench, 5/16” nut driver, Flat Blade Screwdriver

Please help preserve the environment and return used batteries to an authorized depot. Most auto parts stores will pay you for old batteries.

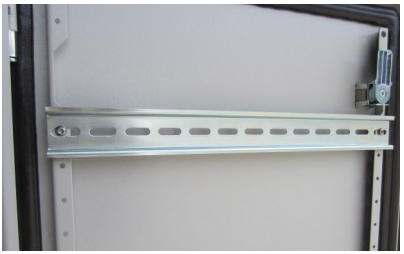
Qwik Install

STEP 1: Add Grounding Wire Between Door and Enclosure: Remove plastic covers on copper studs on inside of door and inside of enclosure. Add jumper wire between 2 copper studs and use copper washers and nuts to secure.

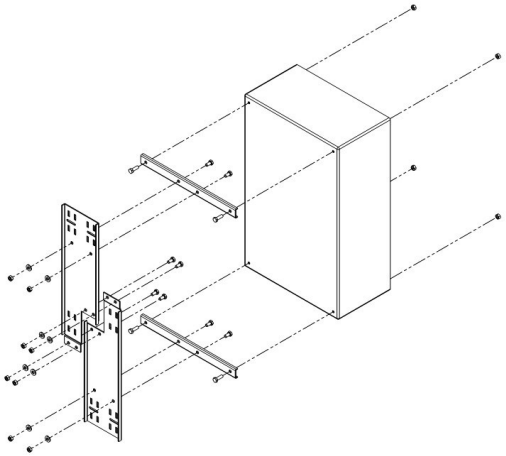
STEP 2: Remove the bottom cover and replace it with the PowerVent™ included with the package. Add wire feedthrus and any necessary connectors into the bottom PowerVent™ plate.

STEP 3: Install hole plug in drain hole in bottom right corner of the enclosure.

STEP 4: Mount the DIN rail to the door using screws provided. Mount any extra equipment to the orange backplate and secure the backplate in the enclosure. Note: The DIN rail can also be mounted to the orange backplate or sides of enclosure if desired.



STEP 5: If pole mounting the enclosure, assemble the pole mount kit to the back of the enclosure and mount the enclosure to a pole using the 6 hose clamps provided. The enclosure can also be wall mounted using the 4 holes in the back of the enclosure.



STEP 6: Insert the battery platform in the bottom of the enclosure. The battery platform has cutouts so wires can be routed under the battery as needed.

STEP 7: Attach the DIN Rail adapters to the charge controller using the screws provided. Clip the controller to the DIN rail by putting the bottom of the DIN bracket into the bottom of the DIN rail, then push DIN bracket up and over the top of the DIN rail.

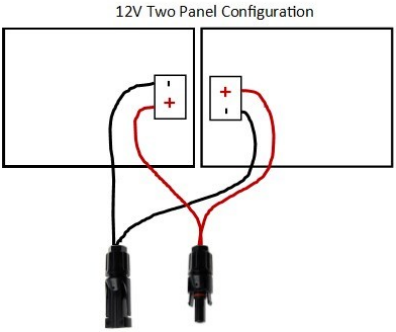
STEP 8: Assemble the solar panel mount and set the correct tilt angle based on your Latitude. There is a useful tool to calculate optimum angle at http://tyconsystems.com If you will be using a fixed angle all year we recommend using the optimum angle for winter sun. Mount the solar panel mount to the pole using hose clamps provided. Be sure to mount high enough so the door of the enclosure clears the solar panel mount when opened. You can also mount the panel to a wall using lag bolts.

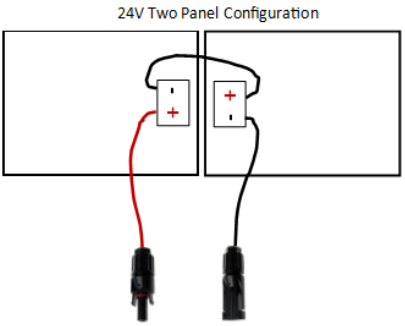
STEP 9: Attach the solar panel to the solar panel mount so that the wire junction box is towards the top or inside. Remove the cover from the solar panel junction box by releasing the 6 snaps. Connect the wires to the + and - screws inside the junction box. Replace the cover making sure it is fully snapped.

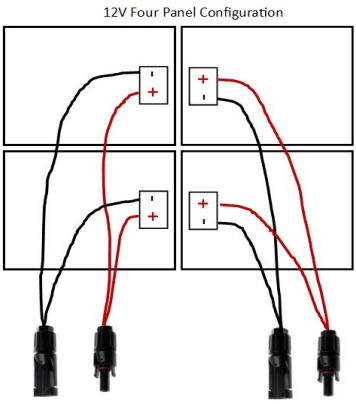
NOTE: When wiring 2 panels in a 24V configuration you will have two

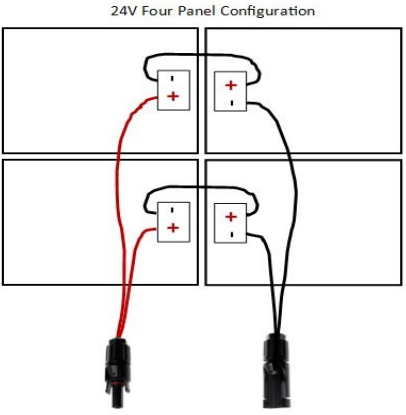
unused wires on the cable assembly. Wrap the ends with electrical tape to avoid any shorting of the panels.

Wire the Solar Panels as shown below, depending on your installation:







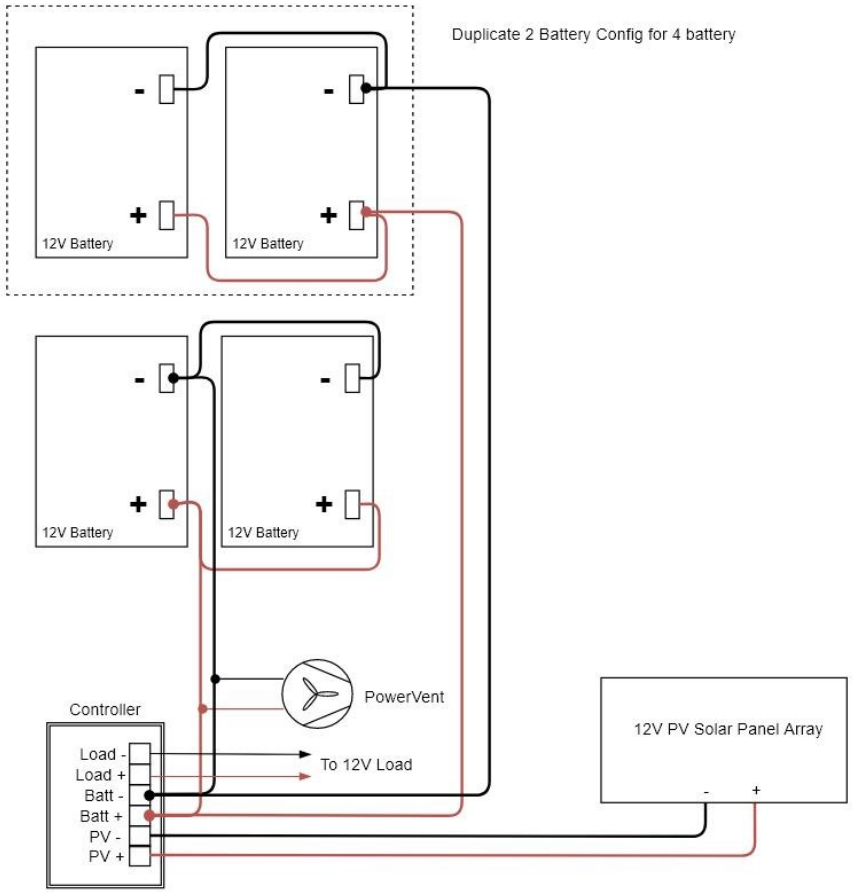


STEP 10: Install the batteries in the enclosure. If using multiple batteries, connect in parallel for 12V output or connect in series for 24V output. The solar controller will automatically detect the battery voltage.

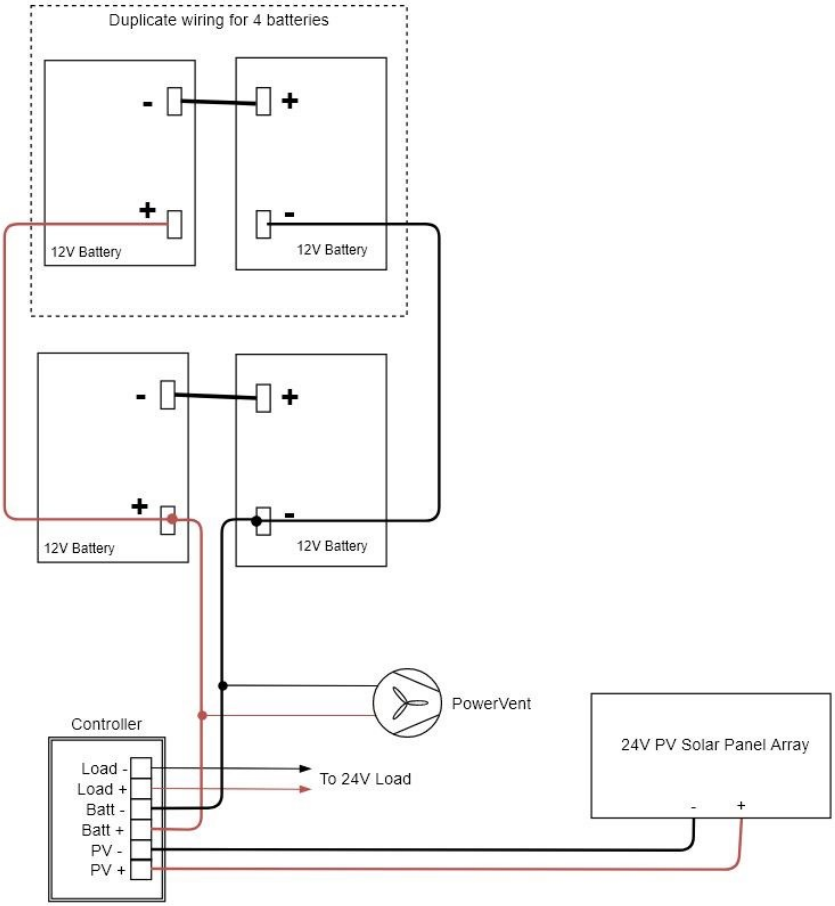
If batteries are installed on their side make sure to apply an insulator (included) to the top of the battery terminal to prevent the battery terminals from shorting to the metal enclosure in case the battery shifts inside the enclosure during an earthquake.

STEP 11: Connect the battery cables to the Battery. Be sure to observe proper polarity. Black wire connects to battery negative terminal and BAT(-) terminal on the controller. Double check wiring and then reinstall the battery cable fuse to energize the system, When a fully charged battery is connected, the battery light should light on the controller and the controller should power up.

CAUTION: Be sure to connect the battery to the controller first and disconnect it last. Connecting solar panels to the controller without the battery connected could damage the controller.



RPST 12V Wiring Diagram



RPST 24V Wiring Diagram

STEP 12: Route the solar panel cables out thru the feedthrus and install to the solar panel. Be sure to connect in the proper polarity, red wire to + and black wire to –. Make sure connections are waterproofed.

CAUTION: Reverse polarity connections will damage the equipment.

STEP 13: Tighten all wire feedthrus. If they don't tighten on a small diameter wire, you can wrap some electrical tape around the wire in the seal area to increase its diameter and make a better seal.

STEP 14: Make sure lid gasket is clean and free from any particles, then carefully close the cover, making sure that wires are clear of the seam and hinge area. Use the special key to close the two cover locks.

TECH CORNER

Additional Information you may find useful

1. **CONTROLLER:** The 12V controller turns off power to the load at 11V and reconnects when the battery reaches 12.5V. The 24V controller turns off power at 22V and reconnects at 24.5V. This protects battery from overdischarge and increases battery life and performance.

2.**Controller LEDS:** There are 4 LED's; Solar, Battery, Load and Error for quick status check.

3.**Fuse:** There is a fuse in the battery cable (30A).The fuse is in-line with battery power. If fuse is blown there was some sort of short in the battery connection and the controller will appear dead. Replace with a 30A fuse.

4. **CAPACITY:** The RemotePro® RPST is rated at either 25W to 50W continuous power output with 6 hours of peak sun per day. (Depending on the configuration).

5. VENTING: The enclosure is vented thru the PowerVent™. The fan is thermostatically controlled and will turn on when the temperature inside the enclosure exceeds 45° C.

6. 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 will kill the battery.

7. RS232: There is an RS232 port on the controller. This port is a special port to interface to the Tycon **TP-SC-BT1** Bluetooth adapter and the **TP-SC-USB-RS232** cable and software. The Bluetooth adapter allows for remote monitoring and control of the controller up to 15m distance. The cable and software are used for connecting to a PC.

7. SOLAR PANEL TILT: There is a solar panel tilt calculator at the Tycon Systems® website http://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 or face North if you are in the Southern Hemisphere. Some typical winter tilt angles are as follows:

Place	*Optimum Winter Tilt*
Houston / Cairo	56 deg
Albuquerque / Tokyo	60.5 deg
Denver / Madrid	65 deg
Minneapolis / Milano	69.5 deg
Winnipeg / Prague	74 deg

8. BATTERY OVERDISCHARGE: We highly recommend hooking all equipment loads to the controller load output. This output will disconnect the load if the battery voltage drops below 11V (12V battery) or 22V (24V battery) and this will protect the battery from over-discharge. If batteries get completely discharged (<10V) because the equipment was connected directly to the battery, you will reduce the battery life and you will most likely need to recondition them with a good quality 10A automotive battery charger. Avoid charging for longer than 24hrs to avoid battery damage. Once they are back to a normal operating range, the integrated charge controller will maintain the charge.

9. TROUBLESHOOTING:

A. ***There is no load output from the controller —***If battery voltage is too low the charge controller will turn off the load outputs. On a 12V battery system the load will turn off if battery is <11V. On a 24V battery system the load will turn off at <22V. Also make sure the controller is set to Mode 15 then press SET to turn load on or off.

B. ***Why is my solar panel voltage so high?-*** Open circuit voltage on a 12V panel is around 23V, and about 40V on a 24V panel. Once you connect to the charge controller the panel voltage will be reduced to a little higher than the battery voltage.

C. ***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 capacity.

D. **Can I charge my batteries from AC power?** Tycon offers AC/DC battery chargers that can be used in parallel with the solar controller to charge batteries from AC.

Replacement Parts

Solar Controller: TP-SC24-20-MPPT, TP-SC24-40-MPPT

Batteries: TPBAT12-52

Solar Mount: TPSM-80X4-UNI (2-4panels)

Solar Panel: TPS-12-80W

SPECIFICATIONS

Subject to change without notice

	RPST12M	RPST24M
Battery Capacity (12V)	100Ah or 200Ah	
Reserve Power @ Rated Load	>24 hours	
Load Output	12V 20A — Unregulated	24V 20A — Unregulated
Battery Voltage (DC)	12V	24V
Battery Type	Valve Regulated Sealed Lead Acid AGM	
Battery Life	5 Years	
Controller Type	MPPT—Temperature Compensated	
Over-Voltage Protection	16V	32V
Bulk Charge	14.4V	28.8V
Float Charge	13.8V	27.6V
Over-discharge protection	11.1V	22.2V
Over-discharge recovery voltage	12.6V	25.2V
Controller Self Consumption	<1W	
Enclosure Type	Powder Coat Steel	
Wind Survivability	90MPH	
Operating Temperature	-30°C to +60°C	

Note: Maximum solar panel size for the TP-SC24-20-MPPT and TP-SC24-40-MPPT controllers.

	20A MPPT	40A MPPT
12V Battery	260W	550W
24V Battery	520W	1100W

Accessories

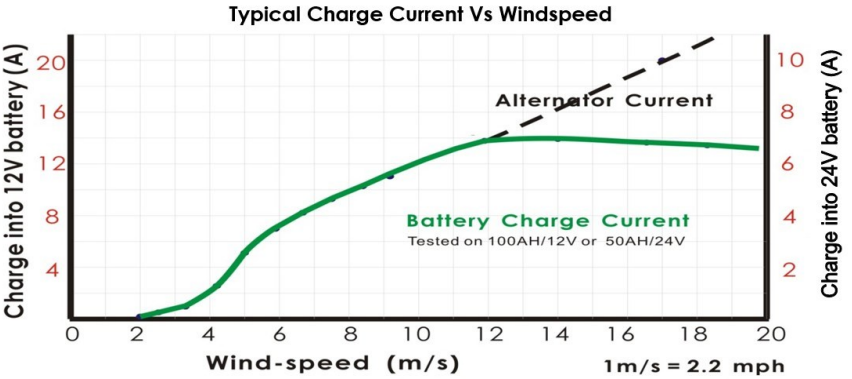
TP-SC-BT1 RS232 to Bluetooth adapter.

- Allows for wireless monitoring and control of the MPPT solar charge controller up to 15m.
- Uses a smartphone app available for Android and IOS devices
- Completely weatherproof for outdoor mounting
- Low Cost

Wind Turbine

TPW-400DT-12/24 400W 12V/24V Wind Turbine

- Includes Integrated Controller with Dump Load
- Good low wind performance
- Self braking in high wind
- 110MPH survivability
- Sealed and maintenance free
- Very Quiet, Low vibration



Remote Station Monitor

TPDIN-Monitor-WEB2

- Qty 4: Voltmeters and current meters
- Web Based: allows station monitoring over the internet.
- Qty 4:10A relays for controlling power to devices, starting a generator, etc.
- Measures internal and external temperatures
- Intuitive user interface and graphical setup
- SNMP compatability
- Shunt compatible for measuring very high currents
- Email Alerts
- Programmable functionality

Notes

Limited Warranty

The RemotePro® products are 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 for units that were not mounted according to user manual.
- Usage other than in accordance with instructions and the normal intended use.

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