TYCON Solar®

RPS/RPL 12/24M
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.

STOP

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: 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 https://calculators.tyconsystems.com. If you will be using a fixed angle all year we recommend using the optimum angle for winter sun. You can also calculate winter tilt using: Your_Latitude*0.9+30. Mount the solar panel mount to the pole using hose clamps provided. Solar panels should face south if you are in the northern hemisphere. 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 2: Attach the solar panel to the solar panel mount so that the wire junction box is towards the top or side. Connect the solar panel MC-4 connectors in series configuration.

TIP: *We strongly recommend installing the batteries and other equipment in the enclosure **after** mounting the enclosure to the pole or wall.*

**STEP 3:** Attach top and bottom brackets to the enclosure.

STEP 4: Mount the enclosure to a pole using U-Bolts and/or 4 hose clamps. The enclosure can also be wall mounted using appropriate lag bolts (supplied by customer).

STEP 5: Attach the included DIN Rail to the door using hardware provided.

STEP 6: Install 4 cable feedthroughs to the bottom of the enclosure.

TIP: *There are multiple cable gland feedthrough in the bottom of the enclosure. If you are not using any of the feedthrough you can cut a short piece of wire, put it through the cable gland and tighten the cable gland on the wire to seal it.*

STEP 7: Remove the fuse from the battery cable(s) and connect wires to the batteries, then install the batteries.
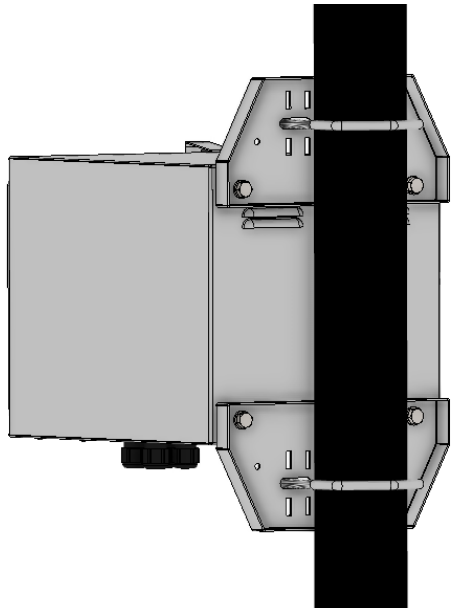
STEP 8: Attach the green DIN Rail clips to the MPPT controller bracket using screws provided and attach the bracket to the controller. The extra parts aren't used. Remove the small plate on the controller bottom to access the wire terminal screws. Connect the battery wires and the wires from the PowerVent™ fan to the controller battery input. Be sure to observe proper polarity. (RED=+).

CAUTION: Reverse polarity connections will damage the equipment.

STEP 9: Connect the included solar panel cable to the MPPT controller PV inputs (Red to PV+). Don't connect the solar cable to solar panel connectors until the controller is connected to the batteries.

STEP 10: Connect your load to the MPPT Controller load output. When the MPPT controller is energized with full battery voltage the load will turn on automatically.

STEP 11: Replace the wire terminal access door on the back of the MPPT controller and mount the MPPT controller to the DIN rail mounted on the enclosure door.

STEP 12: Double check wiring and then re-install the battery cable fuse to energize the system. The MPPT controller will power up and automatically detect the battery configuration. The display is activated by vibration, so to turn on the display, tap the glass cover. Once the controller is energized, connect the solar panel connectors to the solar cable coming from the MPPT controller.

CAUTION: Reverse polarity connections will damage the equipment.

Important Note: The MPPT Controller ships with AUTO detection of battery voltage enabled. **We suggest changing this to a fixed 24V, if using a 24V battery configuration, so that the system can recover automatically if, by chance, the batteries get drained completely**. See MPPT controller user manual for specific instructions.

STEP 13: 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 your own lock to secure the door.

Two Panel Configuration for 12V or 24V Battery Configurations

12V Solar Panel

12V Solar Panel

24VDC

To Controller
PV+

To Controller
PV-

Four Panel Configuration for 12V or 24V Battery Configurations

12V Solar Panel

12V Solar Panel

12V Solar Panel

12V Solar Panel

To Controller
PV+

To Controller
PV-

4
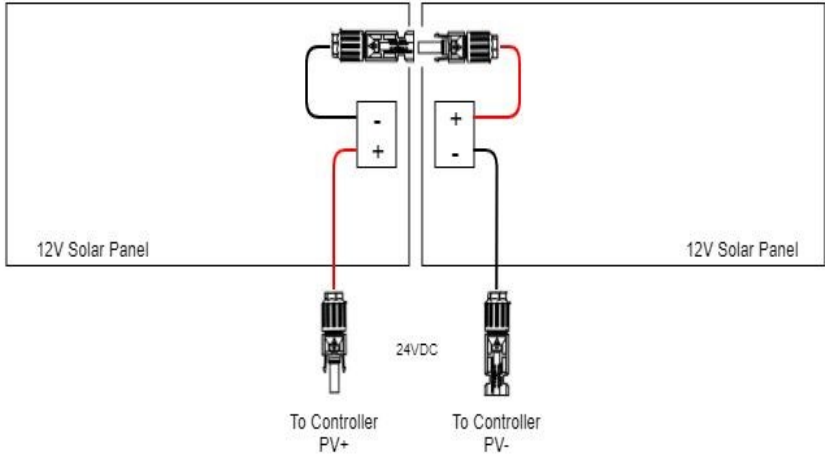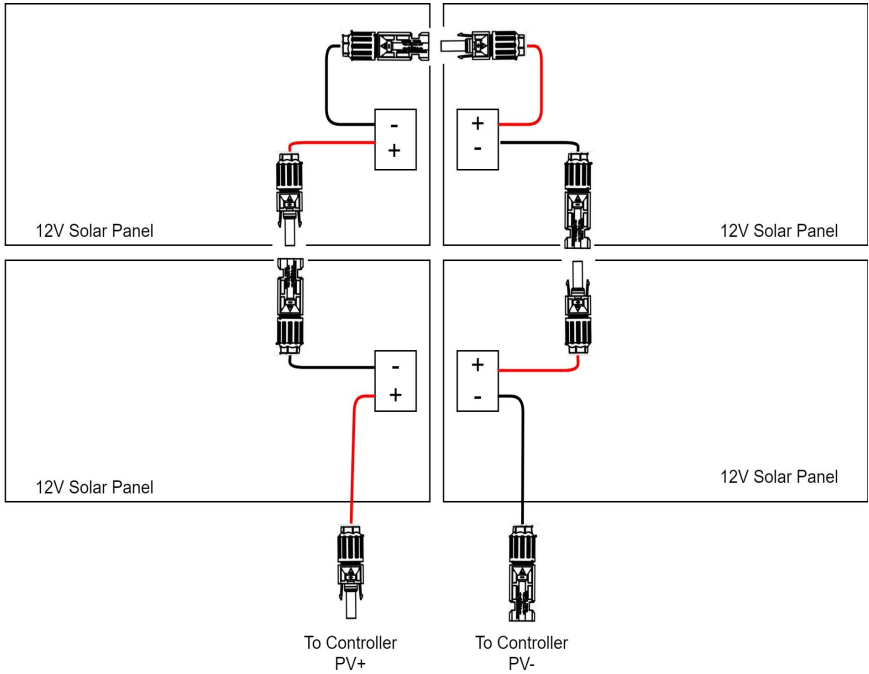
CAUTION: Be sure to connect the battery to the controller first and disconnect it last. Connecting solar panels to the controller without the battery connected could damage the controller.

Duplicate 2 Battery Config for 4 battery
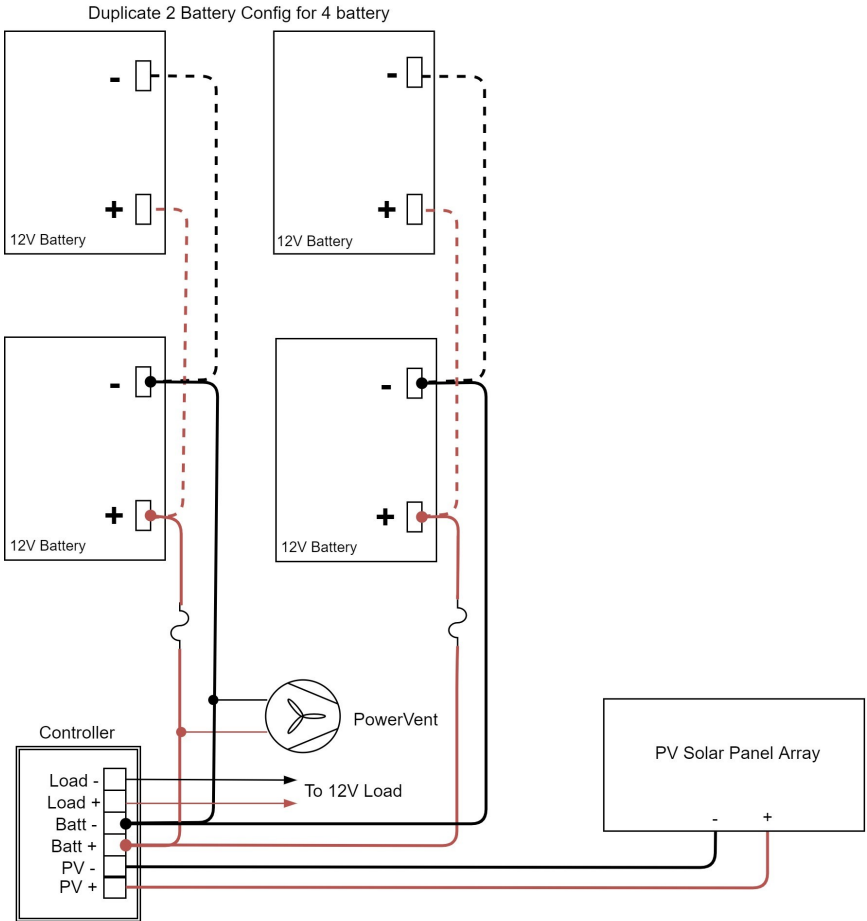
RemotePro 12V Wiring Diagram

Duplicated wiring for 4 batteries

- +
+ -
12V Battery   12V Battery

- +
+ -
12V Battery   12V Battery

PowerVent

Controller
Load -
Load +
Batt -
Batt +
PV -
PV +

To 24V Load

PV Solar Panel Array
- +
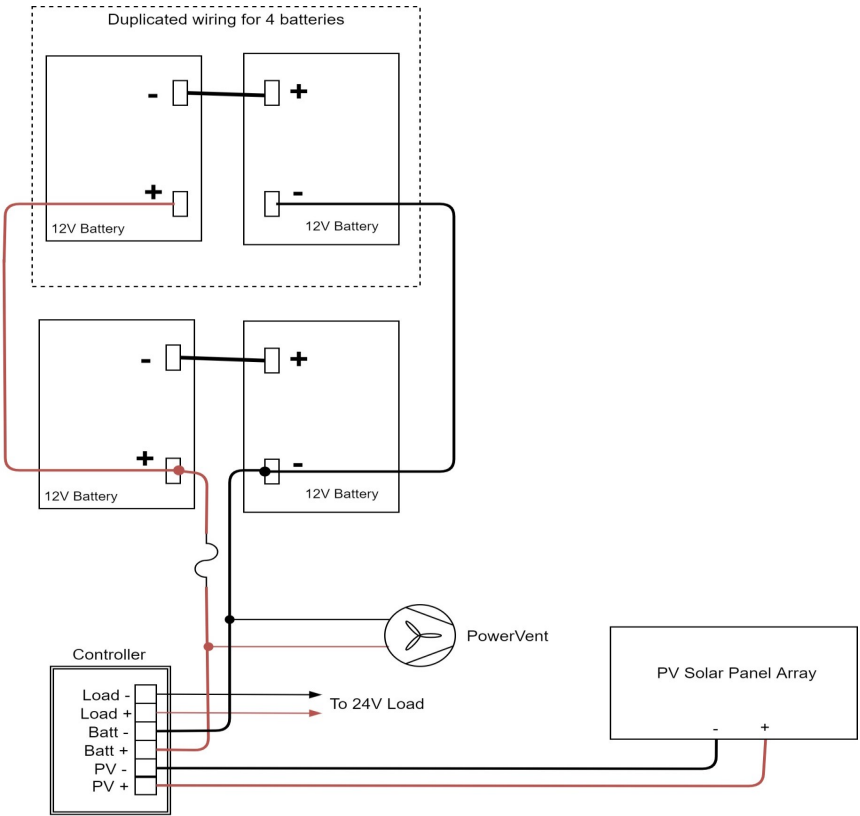
RemotePro 24V Wiring Diagram

TECH CORNER
Additional Information you may find useful

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

2.**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.

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

4. 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.

5. 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 a long time in a discharged state or it will kill the battery. Especially in cold temperatures.

7. Remote Monitoring: There is an RS485 port on the MPPT controller. This port is a special port to interface to the Tycon **TPDIN-Monitor-WEB3 V2** using a **TPDIN-CABLE-485** cable for remote monitoring via Ethernet.

The RS485 port can also be used with the Tycon **TP-SC-WiFi** to provide connectivity to a wireless network. To provide a connection to a PC, use the **TP-SC-USB-RS485**. Software and instructions are available at tyconsystems.com.

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.

10. 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. See controller user guide for more detail..

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. With MPPT controllers, the most efficient operation is achieved by wiring 12V panels in series.

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.

SPECIFICATIONS

Subject to change without notice

	12V	24V
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 Aluminum	
Wind Survivability	90MPH	
Operating Temperature	-30°C to +60°C	

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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8000100 Rev 1 RPS/RPL 12/24M RemotePro® Qwik Install Guide

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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
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