



# POWERTEC SOLAR

## OFF-GRID 8.0.48 PACKAGE



*Freedom begin here*



## NOTE AND ASSUMPTIONS

- To maximize the output wattage of the solar panels, each system was designed to face south or equivalent.
- The solar array's power generation capacity is dependent how much shading and the angle of the rays as they hit the solar panels. Peak power occurs when the rays are at the right angles to the panels, our recommendation is to use a 45 degrees angle if on ground or equivalent on roof. We used an average year round daily peak sun hours of 3 hrs without no shade.
- The efficiency of batteries depends on the temperature at which they are stored. We recommend that lithium-ion batteries and sealed lead-acid batteries (AGM and gel cells) to be stored in a controlled temperature room with a minimum temperature of 0 degrees Celsius at worse.

Most batteries are rated at 77°F (25°C), which means their specifications are based on how the battery's cells perform at 25°C. As a rule of thumb, batteries lose about 10% of their rated capacity, as measured by the cells, for every 15-20 degrees below 80°F. For a larger battery bank, we recommend building an insulated shelter with small controlled fans (small heater for winter) to increase life of the batteries.

- Each system is designed for 2 days of autonomy (DoA), which is how long you can run your loads without the sun.
- Each panel requires at least of 24ft<sup>2</sup> of space.



# KEY FEATURES

## Efficient

- High solar cell efficiency : Monocrystalline 20.1%
- Bypass diodes minimize power drop caused by shade and ensure excellent performance in low-light environments.
- The included MPPT charge controller has a peak efficiency of 97%.

## Reliable

- Electroluminescence (EL) tested solar modules; Anti pid technology (apt) hot-spot protect (hsp) traceable quality (tra.Qtm) anti lid technology (alt)
- Corrosion-resistant aluminum frame for extended outdoor use; allowing the panels to last for decades

## Intuitive

- Sealed; Gel and Flooded charging algorithm ready
- 4-Stage battery charging process for a rapid; efficient; and safe battery charging

## Safe

- Each package is designed with high end quality materials.
- Each component that is used comes with documentation to guide you through.

## Expandable

- The Off grid 2.0, 3.0 and the 4.0 system are expandable.







## OFF GRID 8.0.48

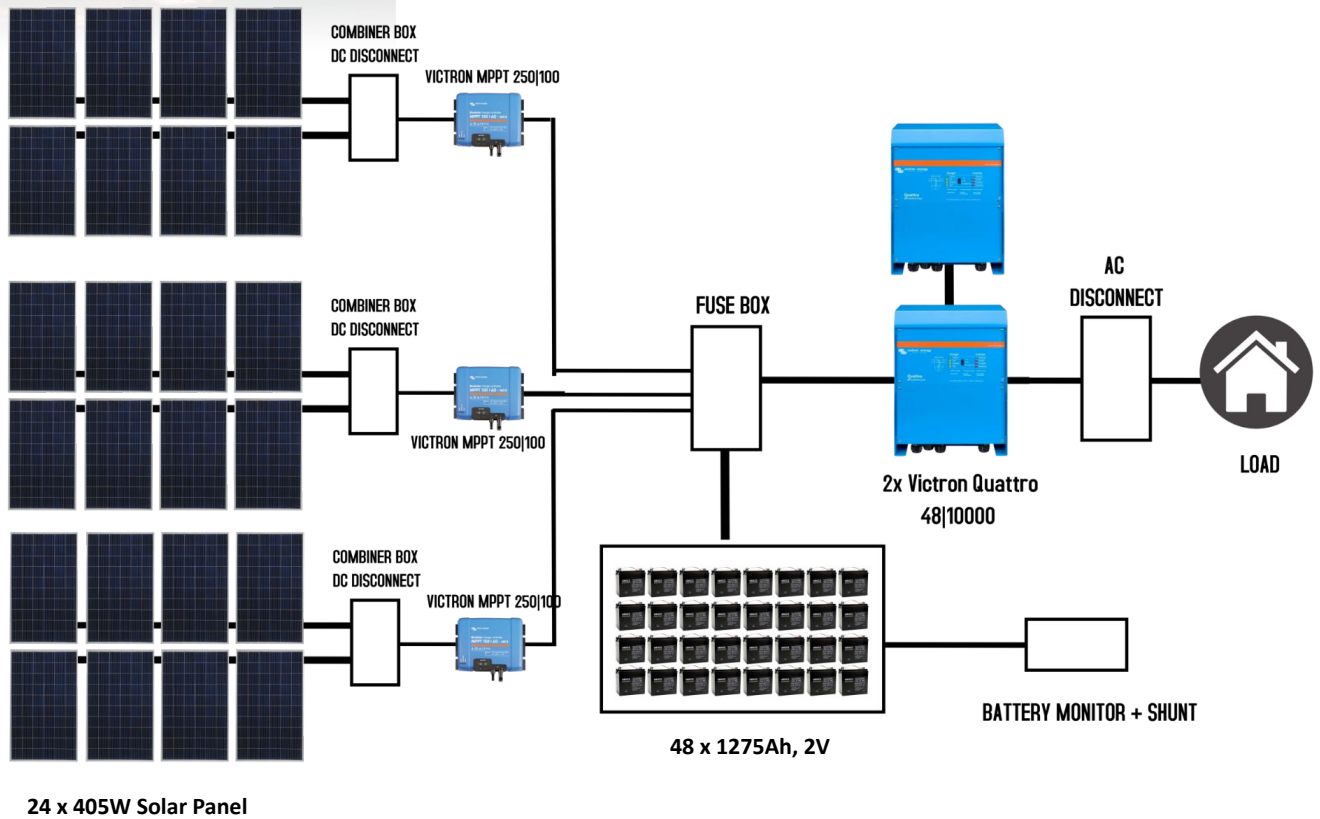
- The "Off-grid 8.0.48" solar system is capable of running loads up to 30 000.Wh per day with a battery bank capacity of 2 days autonomy. That's how long you can run your loads without sunlight.
- The "Off Grid 8.0.48" system has 9720W DC powered by a 48V-2550Ah battery system that gives you the freedom to run more loads than the "Off Grid 6.0" system. This system is able to run your house appliances and higher demanding appliance within the design range (see table for loads examples). This system is ideal for cabins, tiny homes, sheds, treehouse, schools, off grid emergency place and more.
- The batteries are essential for an off-grid system. We recommend keeping these batteries between 10 °C to 20 °C to maximize their life and efficiency.
- The following or equivalent are loads that the system can run



Load	QTY	AC Watts	Hrs/ Day	Days/ Week	Wh/day
LED Lights	50	16	5	7	4000
Ceiling fan	3	60	4	7	720
Washing Machine	1	500	1	2	500
Jep pump (1/2) HP	1	400	2	5	800.0
40" LCD TV	4	140	4	7	2240
Stereo	1	100	4	7	400
Fridge	1	350	8	7	2800
Coffee Machine/ Kettle	2	1000	1	4	2000
Phone Charger	2	7	4	7	56
Laptop Charger	2	65	4	7	520
Internet modern	1	30	6	7	180
Dish Satellite	1	30	4	7	120
Blender	1	350	1	4	350
Diesel Heater (Preheat + small load while running)	1	350	4	5	1400
Cells Signal Booster	1	3	8	7	24
Submersible pump	1	450	4	7	1800
Small Off grid Electric Cloth Dryer	1	3400	2	4	6800
Room Air Conditioner	1	1100	4	4	4400
Bathroom Fan	1	60	2	4	120
Freezer	1	300	8	7	2400
Hair Dryer	1	1500	0.5	4	750
Vacuum Cleaner	1	500	0.5	3	250
Furnace Blower	1	350	6	4	2100
HRV	1	125	8	5	1000
Water Cooler	1	90	5	4	450
Bathroom Fan	1	350	2	4	700



## System Design



**POWERTEC**  
SOLAR

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Winnipeg, MB  
Phone: 855-776-9371

# Finance metrics

24	405 WATT, MONO PANEL
3	MNPV3
6	Breakers MNEPV15-300 VDC
3	SmartSolar MPPT 250/100
2	Victron Quattro 48/10KW
48	Surrette AGM Battery, 2V, 1275 AHr
1	BMV 702 Battery Shunt
1	Cables and Materials
3	MNPV100
2	DC Disconnect 400 A
2	400 A Inverter Fuse
1	Breaker & DC disconnect, Busbar
10	TECK #2-3C 1000V

<b>System Cost</b>	<b>\$92,622.74</b>
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- \*\*\*Installation not included.
- \*\*\*Optional upgrade to lithium.
- \*\*\*Tax not included
- \*\*\* See our racking options for adds on

# Upgrades

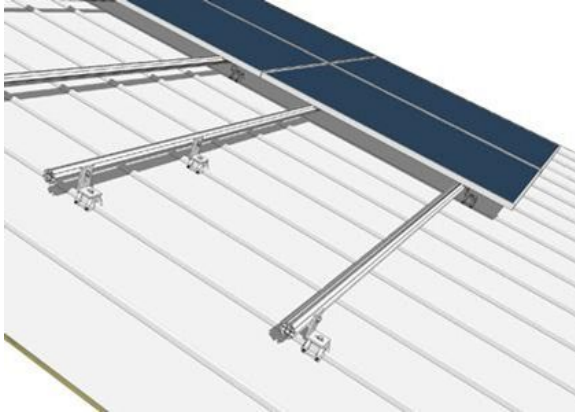
	Options	Qty	Load coverage	Battery bank kwh
Lithium	Option 1 (Lithium)	17	102%	60
Premium Lithium	Option 2 (Lithium)	9	101%	60

## What we need to know.

- Pic of site
- Roof mount or ground mount
- Roof size orientation
- GPS location



# RACKING OPTION



Either on roof or ground our off-grid systems packages comes with multiple options to choose from. The racking systems are designed to be easily installed without compromising roof warranties.

Our ground mount racking system is the ideal solution for bad roof condition (maintenance, replacement, sloped roofs), high temperatures (cooler panels mean more power), ease of system maintenance, size of system, shading issues, etc.

A ground mount solar system is a great choice for a home system if you have space and/or some challenges with a roof mounted system. With ground mounted solar panels, you can optimize your system power production by having the flexibility to adjust the ground racking angle. (facing south).

System	Cost
1 Panel Package	\$350.00
2 Panel Package	\$400.00
3 Panel Package	\$526.00
4 Panel Package	\$726.54
6 Panel Package	\$802.43
20 Panel Package	\$2,425.00
24 Panel Package	\$2,951.00

