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TRENDLY SOLAR

Wind Solar Hybrid Kit Product Manual

600W 24V Wind-Solar Hybrid - 400W Wind Turbine & 2x100W Monocrystalline Solar Panel

800W 24V Wind-Solar Hybrid - 400W Wind Turbine & 4x100W Monocrystalline Solar Panel

1000W 24V Wind–Solar Hybrid - 400W Wind Turbine & 6x100W Monocrystalline Solar Panel

Thank you for your purchase of a TrendlySolar custom wind & solar hybrid kit. We work to provide a combination of quality components, tested and verified for quality and consistency, at a budget conscious price that allows you to start on your green energy journey. From solar powered water pumps, wind solar hybrid kits, and straight solar power setups, we will work to make your project work while recommending unique solutions and providing world class, North American based, support.

If you have any issues or questions, please contact us at:

Email: contact@trendlysolar.com
Call us toll free at 1-833-TrenSol (873-6765)

Contents

600W 24V 25A Wind-Solar Hybrid System

Specifications

400W 24V Wind Turbine
Rated Voltage: 24V
Start Up Wind Speed: 2.0 m/s
Rated Wind Speed: 13 m/s
Survival Wind Speed: 50 m/s
Wheel Diameter: 1.4m
5 Blades
Working Temperature: -40 C to 80 C

2x100W 12V Monocrystalline Solar Panel
Vop: 17.3V
Isc: 6.18A
Imp: 5.61A
Output Tolerance: ±3%
Temperature range: -40℃~+80℃
Frame: Heavy duty aluminum
Maximum System Voltage: 1000V
Approx. Size: 46.85" x 21.26" x 1.38"

24V MPPT 600W Wind/200W Solar Hybrid Controller
Rated Voltage: 24V
Wind Turbine Power：0-600W
Solar Panel Power: 0-200W
Max Wind Turbine Voltage: 60V
Max PV Input Voltage: 50V
Even Charge Protection：28.8V±1%(24V)
Floating Charge：27.6V±1%(24V)
Even Charge Recover：26.4V±1%(24V)
Total Charging Amps: 50A
Shut off (DC)21.8V±1%(24V)
Resume (DC)24.6V±1%(24V)
Shut off (DC)32V±1%(24V)
Resume (DC)30V±1%(24V)
Working Temperature：-25 ~+55
Environment humidity：0~90%
Warranty: One Year

- Includes 16ft Pair of Male/Female MC4 Connector Cables

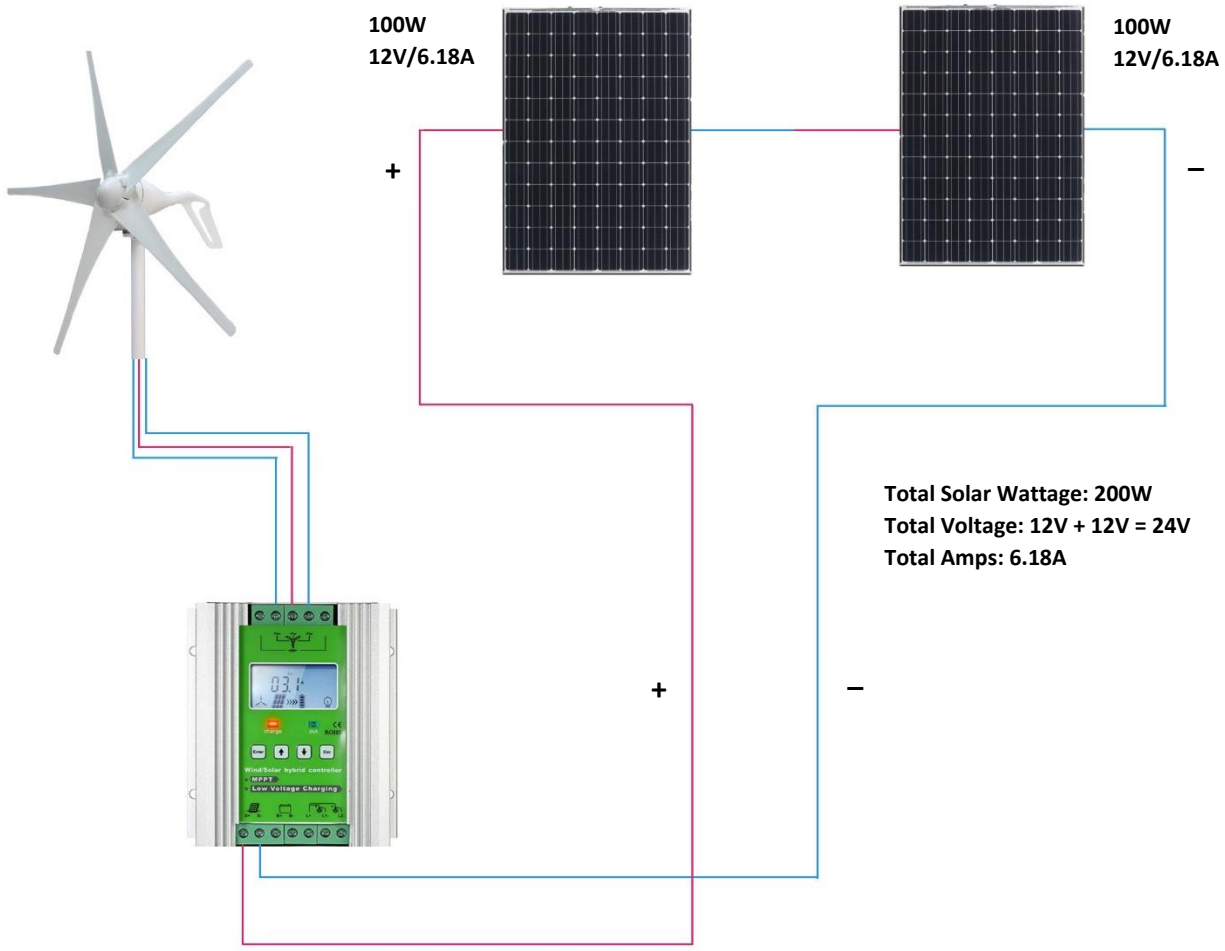
Description

Combining both wind and solar power for constant power generation, this unique 600W hybrid system increases your possible power generation beyond what is possible with just solar power. Our 600W system combines both great power generation, a powerful, full featured hybrid controller, and high efficiency monocrystalline solar panels without breaking your budget.

This system is designed for 24V battery systems, as well as has specific wiring requirements based on the distance the wind turbine and controller are placed from the controller. Proper wires can be purchased from any hardware store, allowing for high customizability with low maintenance.

Note that final wiring requirements for the wind turbine and solar panels are dependent on the total distance from the hybrid controller, with lower gauges being required for longer distances. The wiring requirements found here are recommendations only, and consulting with a certified electrician is highly recommended.

Wiring Diagram



Wiring Explanation

The 600W 24V 25A Wind-Solar Hybrid System is a very straightforward wiring scenario with minimal knowledge needed. By connecting the solar panels together via the negative (male MC4 connector) and positive (female MC4 connectors), you will have a 24V solar panel system with no further considerations or wiring required.

For the 24V Wind Turbine, the necessary wiring is dependent on the distance of the wind turbine from the controller. Note that the lower the gauge number, the thicker the wire. Below is a quick chart with some basic recommendations assuming a 2% power drop as an acceptable reference. If a 10% power drop is acceptable, 12 gauge can be used up to 100ft.

Please note that these are only recommendations:

0-20 Feet	12 Gauge
20-32 Feet	10 Gauge
32-50 Feet	8 Gauge
50-80 Feet	6 Gauge

800W 24V 50A Wind-Solar Hybrid System

Specifications

400W 24V Wind Turbine
Rated Voltage: 24V
Start Up Wind Speed: 2.0 m/s
Rated Wind Speed: 13 m/s
Survival Wind Speed: 50 m/s
Wheel Diameter: 1.4m
5 Blades
Working Temperature: -40 C to 80 C

4x100W 12V Monocrystalline Solar Panel
Vop: 17.3V
Isc: 6.18A
Imp: 5.61A
Output Tolerance: ±3%
Temperature range: -40℃~+80℃
Frame: Heavy duty aluminum
Maximum System Voltage: 1000V
Approx. Size: 46.85" x 21.26" x 1.38"

24V MPPT 600W Wind/600W Solar Hybrid Controller
Rated Voltage: 24V
Wind Turbine Power：0-600W
Solar Panel Power: 0-600W
Max Wind Turbine Voltage: 60V
Max PV Input Voltage: 50V
Even Charge Protection：28.8V±1%(24V)
Floating Charge：27.6V±1%(24V)
Even Charge Recover：26.4V±1%(24V)
Total Charging Amps: 50A
Shut off (DC)21.8V±1%(24V)
Resume (DC)24.6V±1%(24V)
Shut off (DC)32V±1%(24V)
Resume (DC)30V±1%(24V)
Working Temperature：-25 ~+55
Environment humidity：0~90%
Warranty: One Year

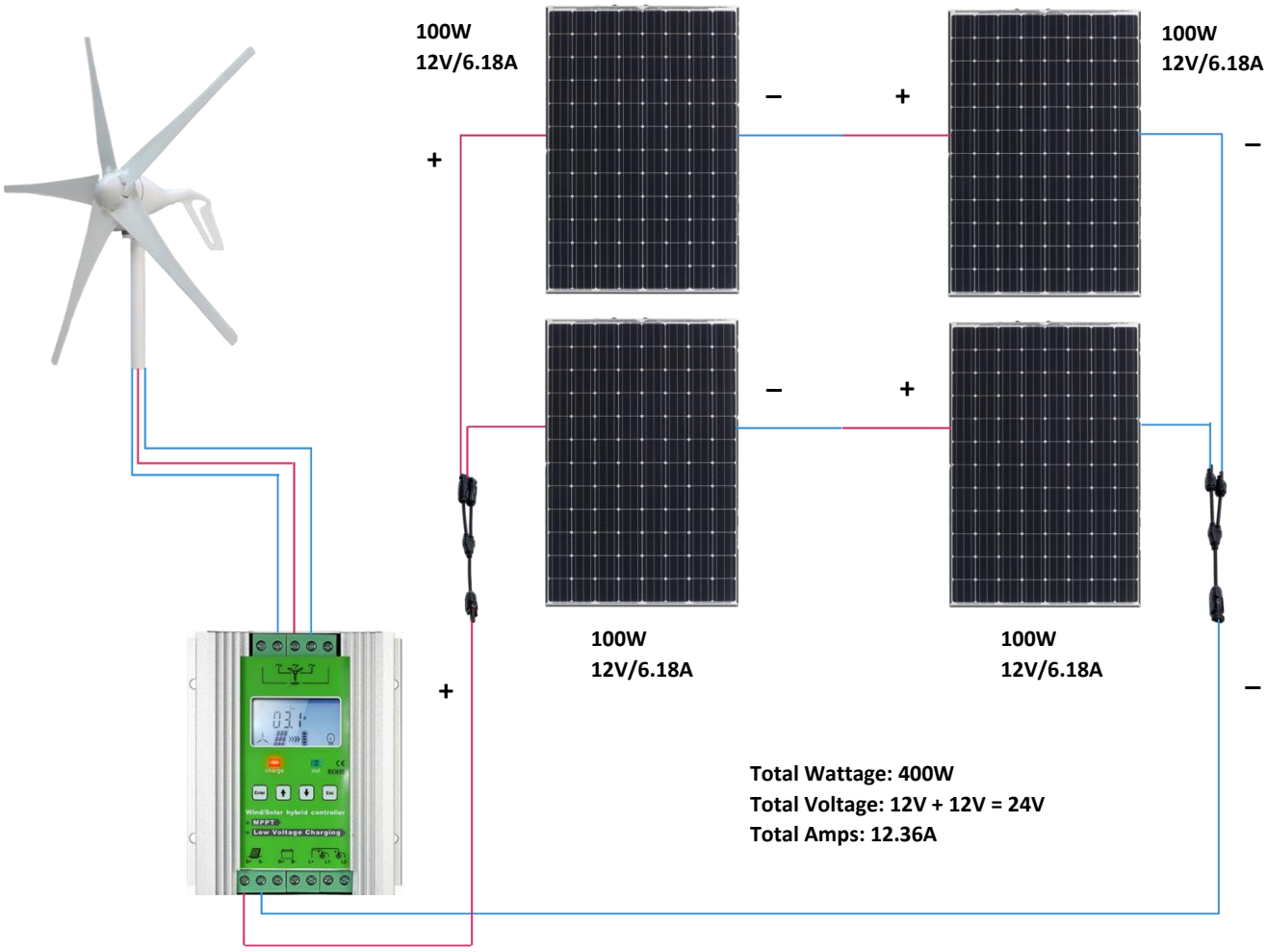
- Includes 16ft Pair of Male/Female MC4 Connector Cables

Description

A more powerful version of our 600W Wind-Solar Hybrid System, our 800W Wind-Solar Hybrid System features a more powerful hybrid controller allowing for future expandability to 600W total solar power. Great for any project that has consistent power requirements, this system requires a 24V battery system. Main features are a total of 50 charging amps on the 24V Hybrid controller, along with allowing for up to 50V of solar power. More power with options, leading to a great and unique combination of budget and quality.

Note that final wiring requirements for the wind turbine and solar panels are dependent on the total distance from the hybrid controller, with lower gauges being required for longer distances. The wiring requirements found here are recommendations only, and consulting with a certified electrician is highly recommended.

Wiring Diagram



Wiring Explanation

The 800W 24V 50A Wind-Solar Hybrid System requires a combination of wiring the 100W 12V Monocrystalline Solar Panels in series and parallel to have a final voltage of 24V. For the solar panels specifically, a pair of Male/Female MC4 2 to 1 splitter cables are required to complete the wiring setup. By wiring in pairs of two, the 800W 24V 50A Wind-Solar Hybrid System will equal 24V's of solar power putting out a maximum of 400W's. If upgrading in the future/planning to add two more solar panels, note that a second pair of Male/Female MC4 2 to 1 splitter cables are required to complete the wiring setup. Please see our 1000W 24V 50A Wind-Solar Hybrid System wiring diagram for an example.

For the 24V Wind Turbine, the necessary wiring is dependent on the distance of the wind turbine from the controller. Note that the lower the gauge number, the thicker the wire. Below is a quick chart with some basic recommendations assuming a 2% power drop is acceptable. If a 10% power drop is acceptable, 12 gauge can be used up to 100ft.

Please note that these are only recommendations:

0-20 Feet	12 Gauge
20-32 Feet	10 Gauge
32-50 Feet	8 Gauge
50-80 Feet	6 Gauge

1000W 24V 50A Wind-Solar Hybrid System

Specifications

400W 24V Wind Turbine
Rated Voltage: 24V
Start Up Wind Speed: 2.0 m/s
Rated Wind Speed: 13 m/s
Survival Wind Speed: 50 m/s
Wheel Diameter: 1.4m
5 Blades
Working Temperature: -40 C to 80 C

6x100W 12V Monocrystalline Solar Panel
Vop: 17.3V
Isc: 6.18A
Imp: 5.61A
Output Tolerance: ±3%
Temperature range: -40℃~+80℃
Frame: Heavy duty aluminum
Maximum System Voltage: 1000V
Approx. Size: 46.85" x 21.26" x 1.38"

24V MPPT 600W Wind/600W Solar Hybrid Controller
Rated Voltage: 24V
Wind Turbine Power：0-600W
Solar Panel Power: 0-600W
Max Wind Turbine Voltage: 60V
Max PV Input Voltage: 50V
Even Charge Protection：28.8V±1%(24V)
Floating Charge：27.6V±1%(24V)
Even Charge Recover：26.4V±1%(24V)
Total Charging Amps: 50A
Shut off (DC)21.8V±1%(24V)
Resume (DC)24.6V±1%(24V)
Shut off (DC)32V±1%(24V)
Resume (DC)30V±1%(24V)
Working Temperature：-25 ~+55
Environment humidity：0~90%
Warranty: One Year

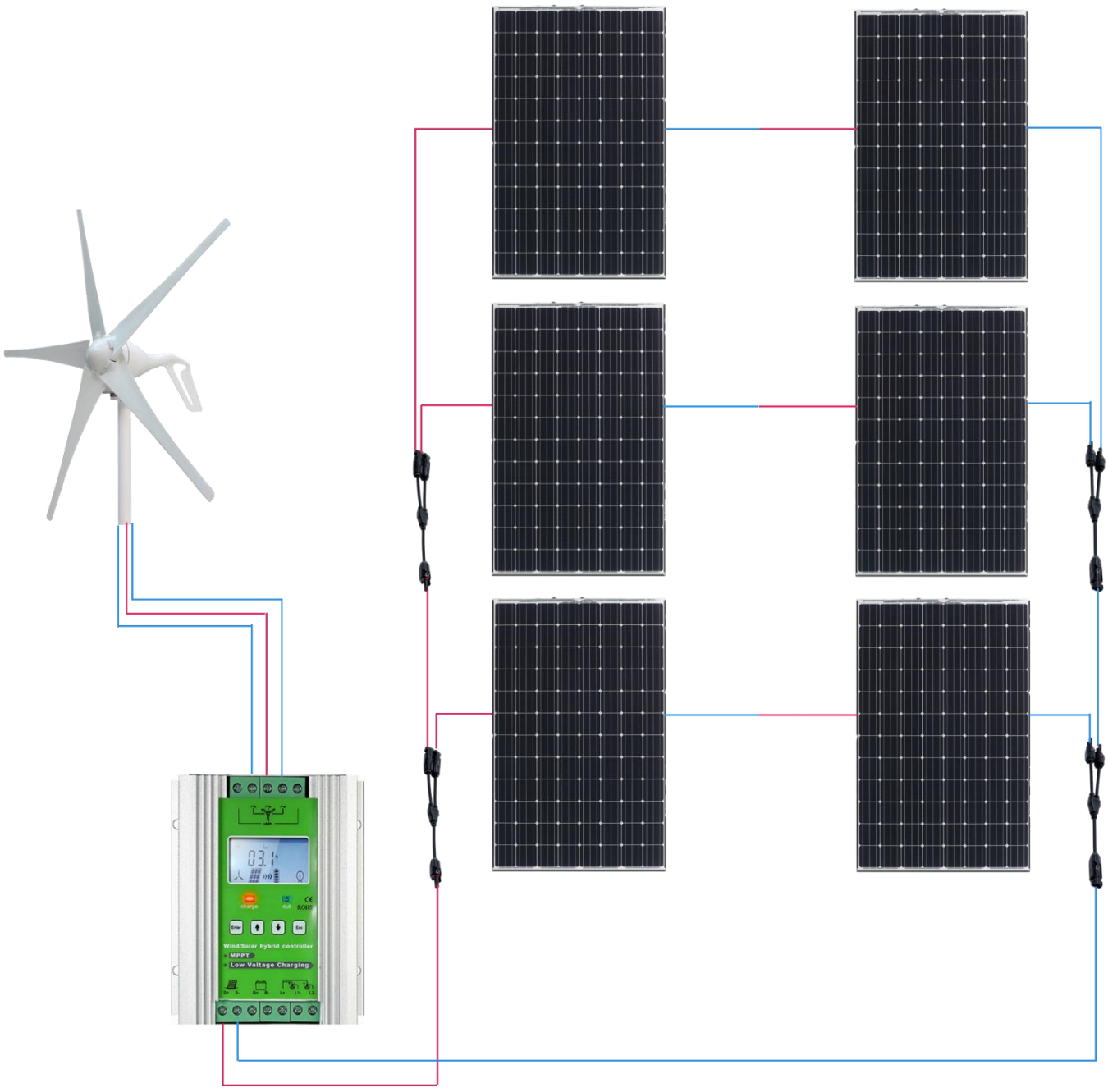
- Includes 16ft Pair of Male/Female MC4 Connector Cables

Description

Our most powerful Wind-Solar Hybrid System, the 1000W Wind-Solar Hybrid System features a 24V hybrid controller with a total power capability of 600W Wind Power and 600W Solar Power. Great for any project that has consistent or larger power requirements, this system requires a 24V battery system. Main features are a total of 50 charging amps on the 24V Hybrid controller, highly efficient 600W of Monocrystalline solar power, and options to add a more powerful wind turbine in the future. High power with high efficiency, with a great and unique combination of budget and quality.

Note that final wiring requirements for the wind turbine and solar panels are dependent on the total distance from the hybrid controller, with lower gauges being required for longer distances. The wiring requirements found here are recommendations only, and consulting with a certified electrician is highly recommended.

Wiring Diagram



Wiring Explanation

The 1000W 24V 50A Wind-Solar Hybrid System requires a combination of wiring the 100W 12V Monocrystalline Solar Panels in series and parallel to have a final voltage of 24V. For the solar panels specifically, a pair of Male/Female MC4 2 to 1 splitter cables are required to complete the wiring setup. By wiring in pairs of two, the 800W 24V 50A Wind-Solar Hybrid System will equal 24V's of solar power putting out a maximum of 400W's. If upgrading in the future/planning to add two more solar panels, note that a second pair of Male/Female MC4 2 to 1 splitter cables are required to complete the wiring setup. Please see our 1000W 24V 50A Wind-Solar Hybrid System wiring diagram for an example.

For the 24V Wind Turbine, the necessary wiring is dependent on the distance of the wind turbine from the controller. Note that the lower the gauge number, the thicker the wire. Below is a quick chart with some basic recommendations assuming a 2% power drop is acceptable. If a 10% power drop is acceptable, 12 gauge can be used up to 100ft.

Please note that these are only recommendations:

0-20 Feet	12 Gauge
20-32 Feet	10 Gauge
32-50 Feet	8 Gauge
50-80 Feet	6 Gauge

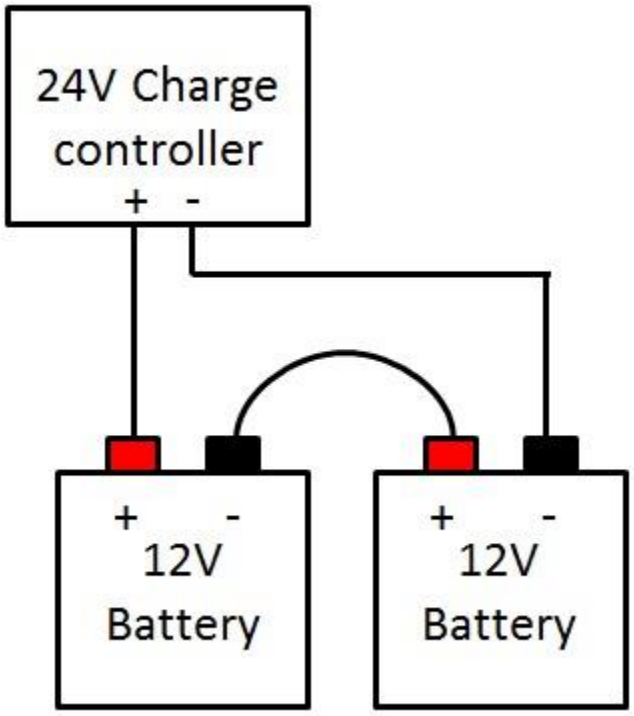
Battery Configuration and Setup

24V Battery Wiring Requirements

As these systems are only 24V systems, and are required to be wired as such (unless the wind turbine is left out), you will need a 24V battery setup to match the voltage of the complete system.

This manual will focus on wiring two 12V batteries into a 24V configuration, however, note that 6V batteries could also be wired to 24V if required following the same methodology. Many articles online will cover these methods as well.

2 x 12V Battery Wiring Example



Note in the image above that with two 12V batteries, the negative terminal of one would be wired to the positive terminal of the other, with the remaining positive and negative terminals than going to the controller.

For the **total amps** of a 2 x 12V battery system, please be aware that the total amp hours of a 24V battery system will be equal to what one of the 12V batteries being used has.

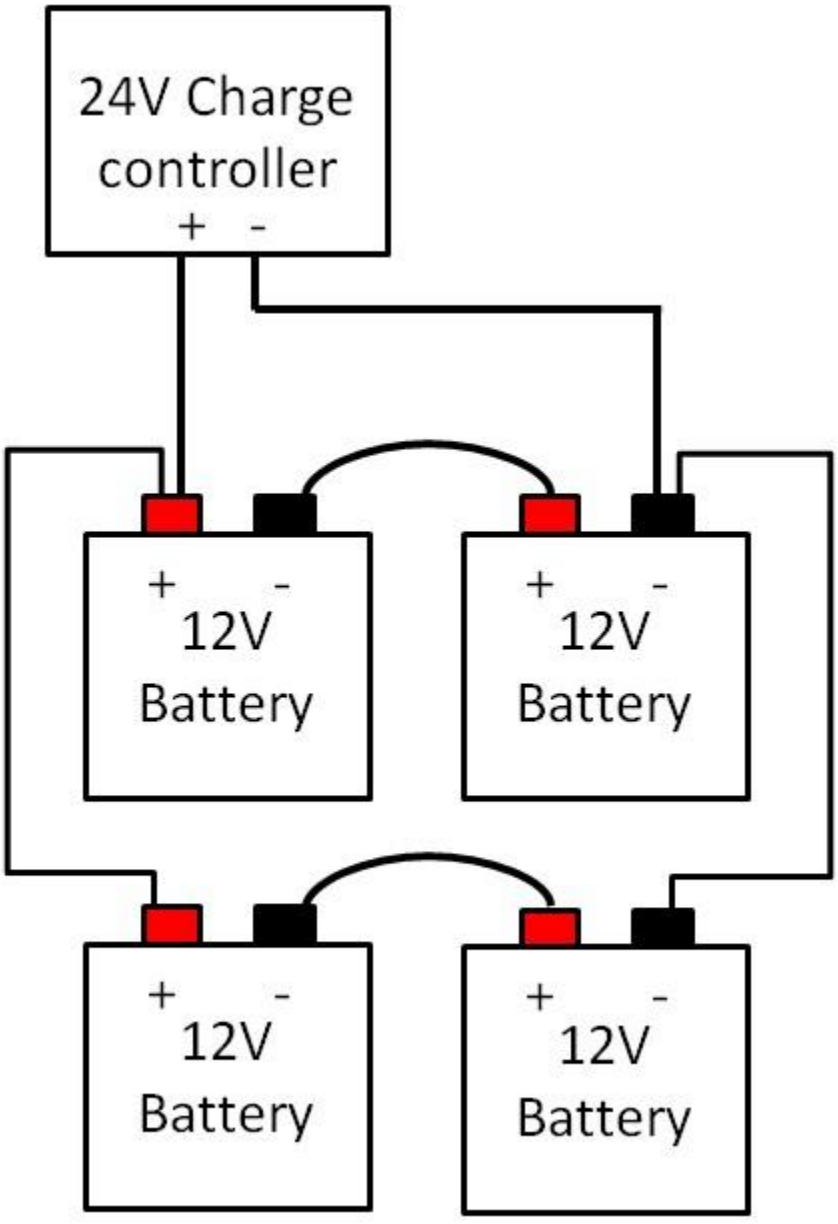
i.e If using two 12V 100Ah batteries, when combined as above the system would be 24V 100Ah

Please see notes below about how to add total amp hours with multiple batteries. Note that batteries with different amp hours should **not** be combined.

Wiring Multiple Pairs of 12V Batteries to 24V

As you power needs grow so will your battery storage requirements. Most 12V batteries range between 100Ah and 150Ah before they increase drastically in price, and so it can be more efficient to have several 12V 100Ah batteries to make a 200Ah 24V battery system instead of one set of very large batteries.

4 x 12V to 24V Battery Wiring Example



Note in the image above that with 4 12V batteries, the negative terminal of one would be wired to the positive terminal of the other, with the remaining positive and negative terminals wired with the next pair and so on. This process can be followed for 6, 8, or 12 batteries. For this particular setup, batteries must be added in pairs.

For the **total amp hours** of a 4 (or more) x 12V battery systems, please be aware that the total amp hours of the 24V battery system will be equal to the total pairs of 12V batteries.

i.e If using four 12V 100Ah batteries, when combined as above the system would be 24V 200Ah (2 pairs of two 12V batteries, with each pair adding 100Ah)