

# Operation Manual

## Dynamo V-400



Wujiang Dynamo Wind Turbine Manufacturing Co., Ltd

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Thank you for purchasing a Dynamo V-400

The Dynamo V-400 is a wind generator of highest quality and will reliably generate power for many years. However, reliable operation not only will depend on product quality but also on accurate assembling and proper wiring. Please read this manual carefully before you start the installation. Please also keep in mind our safety instructions and warning notices. Our main concern is with your safety.

Notices:

This information is believed to be correct and reliable. However, Dynamo assumes no responsibility for inaccuracies or omissions. The user of this information and product assumes full responsibility and risk.

All specifications are subject to change without notice.

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## 1. General information and references

### 1.1 Range of application

The electric power generated by the **V-400** charges batteries and can directly be used for 12 VDC or 24 VDC-appliances (depending on the system voltage). AC-appliances are supplied via an optional inverter. There is a wide range of high quality 12 VDC or 24 VDC equipment available like energy saving lamps, refrigerators, deep-freezers, water pumps, ventilators, consumer electronics, TV, radio and navigation equipment, etc.

Ideal fields of application for example are sailing yachts, campers, summer cottages, mountain shelters, as well as industrial applications, like navigational aids, traffic management systems, environmental monitoring stations or transmitters. For rural electrification the **V-400** supplies basic power to families, schools, small health care centres etc.

The combination with solar arrays is without problems. At many places, energy supplies from sun and wind complement each other. That is why the **V-400** is used in wind/solar hybrid systems to optimise the availability of power (at minimised battery capacity).

### 1.2 **V-400** wind generator has the below advantages:

1. New design and material, long running life up to 15years.
2. Very smart turbine, very nice design and new material.
3. Low wind start, low noise.
4. Automatic protection for strong wind.
5. Multi functional electric power controller.
6. Easy to install and uninstall.
7. Free running cost, free maintenance.
8. Excellent after sale service

## 2. Safety instructions

Please carefully study this manual before starting assembly and installation. The information provided is to ensure your safety during mounting, operation and in case of trouble. If you have any additional questions please contact your dealer, a V-400 service partner or the manufacturer.

### 2.1.1 Mechanical dangers

The main danger is the spinning rotor. The rotor blades are sharp and can cause very serious injuries even at very low speed.

**WARNING:** Never touch the running rotor.

Never try to stop the rotor by hand.

Do not mount the rotor at places where any persons can reach the area swept by the rotor.

Avoid any objects touching the running rotor.

### 2.1.2 Electrical dangers

WARNING: Cables with insufficiently dimensioned cross sections can heat up extremely and cause electrical fire.

You must be extremely cautious never to short-circuit the battery.

Never install the batteries at places with danger of spark formation.

Provide sufficient ventilation at all times.

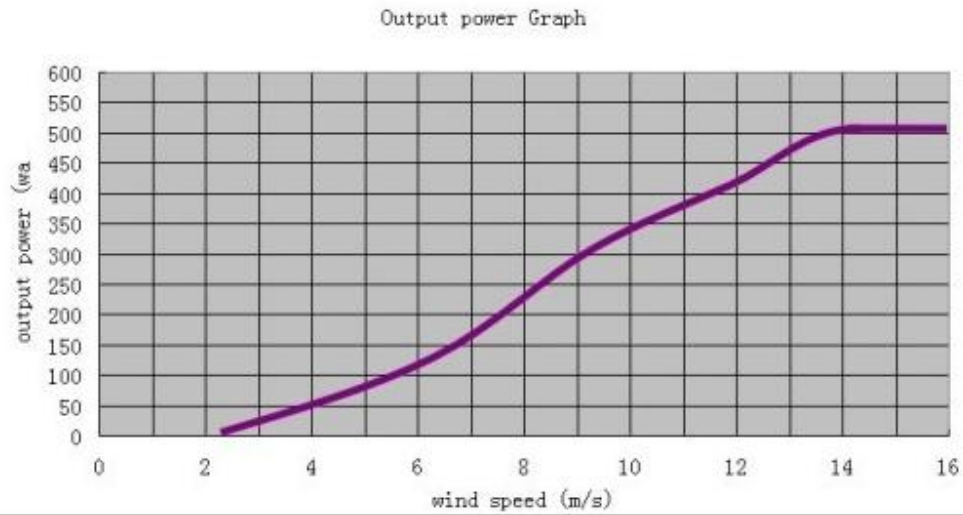
Never install the power resistors on inflammable surfaces.

## 3. Specifications

### 3.1 Technical data

|                            |   |
|----------------------------|---|
| <b>Model</b>               | <b>V-400</b>                                    |
| <b>Rated power</b>         | <b>400W</b>                                     |
| <b>Max power</b>           | <b>500W</b>                                     |
| <b>Rated wind speed</b>    | <b>11 m/s</b>                                   |
| <b>Start up wind speed</b> | <b>2.5 m/s</b>                                  |
| <b>Rotor diameter</b>      | <b>1.20 m</b>                                   |
| <b>Number of blades</b>    | <b>3</b>  |
| <b>Blade material</b>      | <b>CFRP</b>                                     |
| <b>Body:</b>               | <b>magnalium framework</b>                      |
| <b>Rotor speed</b>         | <b>500 – 1000 rpm</b>                           |
| <b>Generator</b>           | <b>permanent magnet, 3-phase with rectifier</b> |
| <b>Rated voltage</b>       | <b>12 V DC or 24 V DC</b>                       |
| <b>Brake</b>               | <b>electromagnetic brake</b>                    |
| <b>Surface protection:</b> | <b>Aluminum oxide and plastic coating</b>       |
| <b>Weight</b>              | <b>7.8 kg</b>                                   |
| <b>Controller</b>          | <b>high function external charge controller</b> |

### 3.2 Performance specifications



### 4.Preparations for assembly

#### 4.1 Packing list

Please check your delivery for completeness and transport damage.



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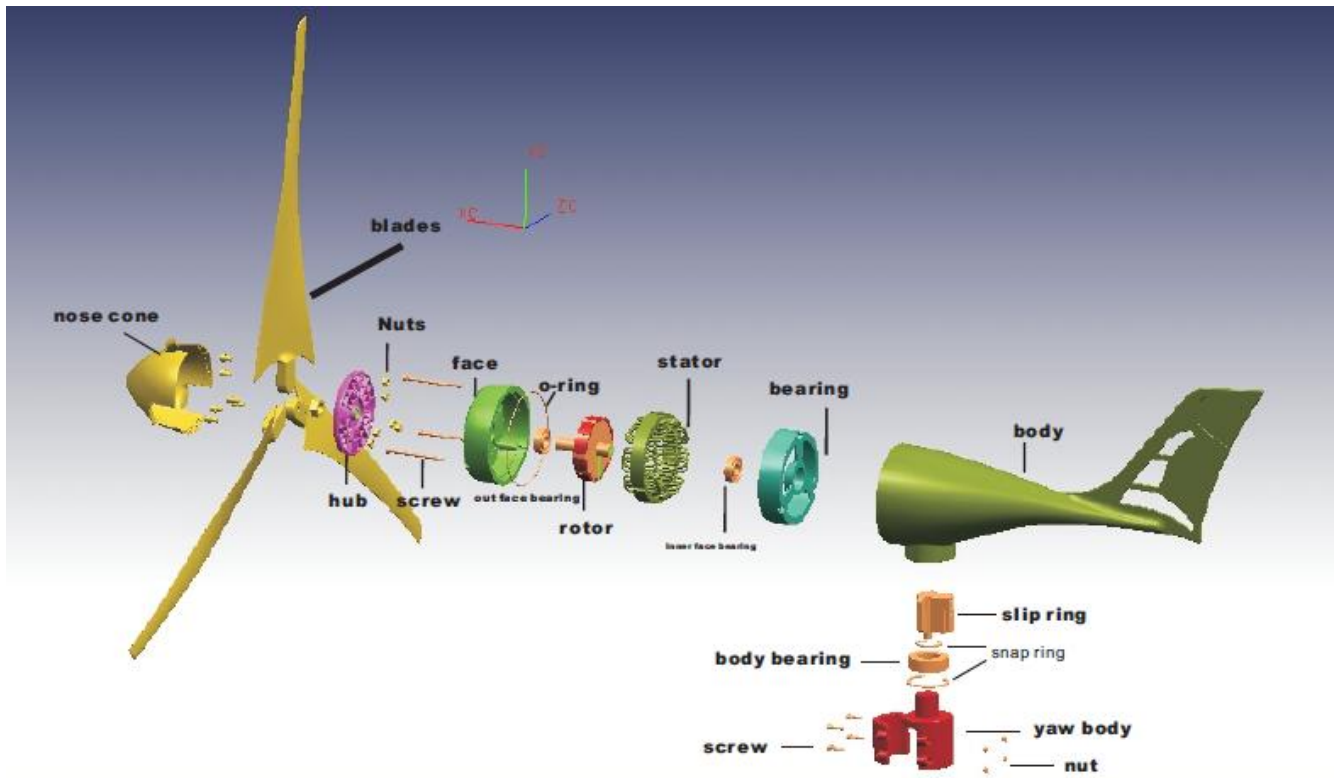
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|   |        |                  |
|---|--------|------------------|
| A | 1 pcs  | Generator        |
| B | 1 pcs  | Hub              |
| C | 1 pcs  | nose cone        |
| D | 3 pcs  | Rotor blade      |
| E | 10 pcs | screw            |
| F | 10 pcs | nuts             |
| G | 1 pcs  | Operation manual |

**4.2 Optional Accessories**

charge controller

Wind turbine assembling drawing



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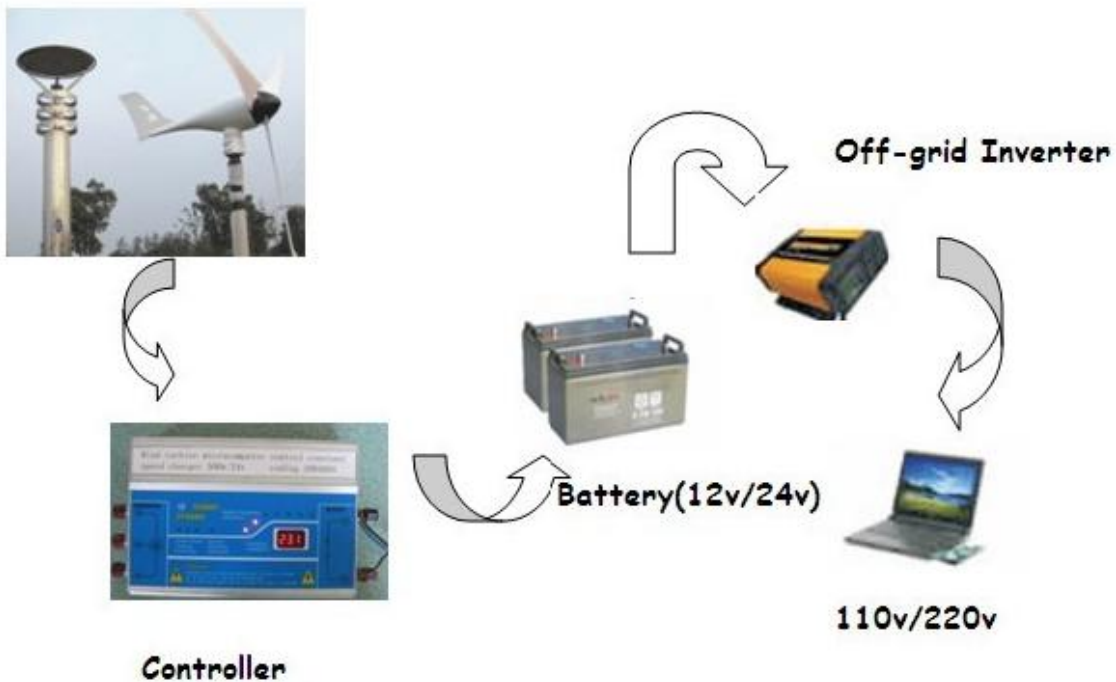
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### 5. Electrical components and electrical connection

NOTE: After careful planning first the electrical components should be installed at their respective places.  
The electrical connection should be made in a second step.  
Make sure that the batteries are disconnected until installation is complete.

#### 5.1 Wiring diagrams

##### Wind Generator



Alternative charge controller:

For wiring diagrams of these charge controllers, pls refer to the respective manuals.

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### 5.3 System components

#### 5.3.1 Wires

The cross sections of the wires to be used depend on their length and the rated voltage of your wind generator. Cables with insufficiently dimensioned cross sections can heat up extremely and cause electrical fire.

For the 24 Volt version applies:

|   |                               |                             |                             |                             |                             |                             |
|---|-------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| distance from mast head to the battery      | Up to<br>10,6 m               | 10,7 –<br>17,6 m            | 17,7 –<br>28,2 m            | 28,3 –<br>42,4 m            | 42,3 –<br>70,6 m            | 70,7-<br>112,9 m            |
| minimum cross section recommended per cable | 2,5 mm <sup>2</sup><br>=AWG14 | 4 mm <sup>2</sup><br>=AWG12 | 6 mm <sup>2</sup><br>=AWG10 | 10 mm <sup>2</sup><br>=AWG8 | 16 mm <sup>2</sup><br>=AWG6 | 25 mm <sup>2</sup><br>=AWG4 |

WARNING: Cables with insufficiently dimensioned cross sections can heat up extremely and cause electrical fire.

#### 5.3.2 Battery

Lead acid batteries are most commonly used.

WARNING: Never install the batteries at places with danger of spark formation.

Provide sufficient ventilation at any time

Never short-circuit the battery.

The battery terminals may be connected only after all work on the electric system has been completed.

#### 5.3.3 Charge controller

We recommend to install the charge regulators DW05/24. These regulators are adapted optimally to the **V-400** and ensure effective charging of the batteries.

Before installing the charge regulator please read the respective operating instructions. Also follow the instructions concerning the point of installation.

WARNING: Do not interchange the polarity of the cables.

## 6. Mounting on a standard mast

The yaw shaft of your **V-400** fits for various sizes of mast tubes:

description outer-∅ thickness inner-∅ material

|          | outer--Dt | Thickness | Inner-D | Material                |
|----------|-----------|-----------|---------|-------------------------|
| 2 "-tube | 60,3 mm   | 2,3 mm    | 55,7 mm | steel, welded           |
| 2 "-tube | 60,3 mm   | 2,0 mm    | 56,3mm  | stainless steel, welded |
|          | 60,0 mm   | 2,5 mm    | 55,0 mm | aluminium, seamless     |



7. Warranty

**LIMITED WARRANTY**

The **Dynamo** Company Warranty provides free replacement cover for all defects in parts and workmanship for 36 months from the date of purchase. **Dynamo** obligation in this respect is limited to replacing parts which have been promptly reported to the seller and are in the seller's opinion defective and are so found by **Dynamo** upon inspection. A valid proof of purchase will be required if making a warranty claim.

This Warranty is void in the event of improper installation, owner neglect, misuse, damage caused by flying debris or natural disasters including lightning and hurricane force winds. This warranty does not extend to support posts, inverters, batteries or ancillary equipment not supplied by the manufacturer. No responsibility is assumed for incidental damage. No responsibility is assumed for consequential damage. No responsibility is assumed for damage caused by the use of any unauthorized components.

**For your future reference we recommend you note the following:**

|                              |                      |
|------------------------------|----------------------|
| <b>Serial Number:</b>        | <input type="text"/> |
| <b>Date of Purchase:</b>     | <input type="text"/> |
| <b>Date of Installation:</b> | <input type="text"/> |
| <b>Type of Regulator:</b>    | <input type="text"/> |