

Troubleshooting

Low power problem



Index

- 1. Tables4**
 - 1.1 Device settings on Hybrid 600.....4
 - 1.2 Device settings on Hybrid 1000.....4
 - 1.3 Device settings Hybrid Boost PWM version4
 - 1.4 Device settings Hybrid Boost MPPT version.....5
 - 1.5 Resistance winding values.....5
- 2. How to measure the resistance on the AC cables6**
- 3. Recommended check sequence6**
 - 3.1 Near the controller6
 - 3.2 At the wind generator AC wires7
 - 3.3 At the wind generator windings7
- 4. How to remove the wind generator windings.....9**
- 5. How to clean the Slip Ring.....11**
- 6. Silentwind help request contact15**

1. Tables

1.1 Device settings on Hybrid 600

	Values	
	12V	24V
Charge off	14,4V	28,8V
Breake on	27 - 29A	15A
Break time	50 s	



1.2 Device settings on Hybrid 1000

	Values	
	12V	24V
Charge off	14,4V	28,8V
Brake on	27A - 29A	15A



1.3 Device settings Hybrid Boost PWM version

	Values		
	12V	24V	48V
Absorption	13,4V	27,8V	56,6V
Overvoltage	16V	32V	64V
Low Wind Boost	2V	4V	10V
Storm Brake	32A	16A	9A
Under Voltage Switch off	10,8V	21,6V	43,2V
Under Voltage Recovery On	12V	24V	48V
Solar Switch off	1,5V	3V	6V
Solar Switch on	1V	2V	3V



1.4 Device settings Hybrid Boost MPPT version

	Values		
	12V	24V	48V
End of charge voltage	14,4V	28,8V	57,6V
Overvoltage	16V	32V	64V
Low Wind Boost	3V	4V	10V
Storm Brake	32A	16A	9A
Under Voltage Switch off	10,8V	21,6V	43,2V
Under Voltage Recovery On	12V	24V	48V
Solar Switch off	1,5V	3V	6V
Solar Switch on	1V	2V	3V



1.5 Resistance winding values

Version	Values		
	12V	24V	48V
Hybrid 1000	0,5 Ω	1,7 Ω	5,5 Ω
Hybrid Boost PWM	0,2 Ω	0,5 Ω	1,2 Ω
Hybrid Boost MPPT	0,3 Ω	0,5 Ω	1,2 Ω



IMPORTANT NOTE!

It's very important for you to choose the proper multimeter since wrong measurements will lead to wrong interpretations.

- ✦ On the left side, the multimeter range is 1 Ω and it's not able to read the resistance correctly.
- ✦ On the right side the range it's 0.001Ω and the measure is done correctly.

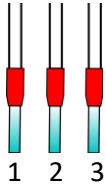


How to measure the resistance on the AC cables



- Before doing these measurements, you must stop the wind generator. It's recommended that you tie the blades to avoid them to rotate.
- A minimum knowledge how to set the Multimeter is needed.

AC Cables



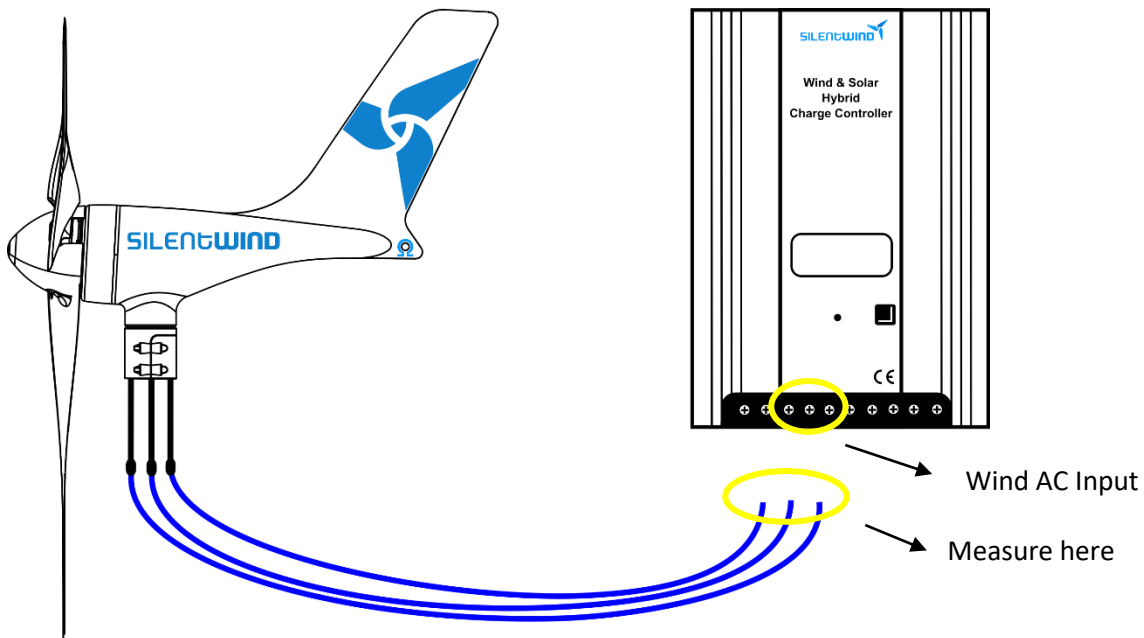
- Set your Multimeter to Ohmmeter to the lowest scale.
- Measure all three possible combinations:
 - o From 1 to 2
 - o From 1 to 3
 - o From 2 to 3

2. Recommended check sequence

- After this point, we will assume that your controller settings are correct. Please check your device setting values on chapter 1.

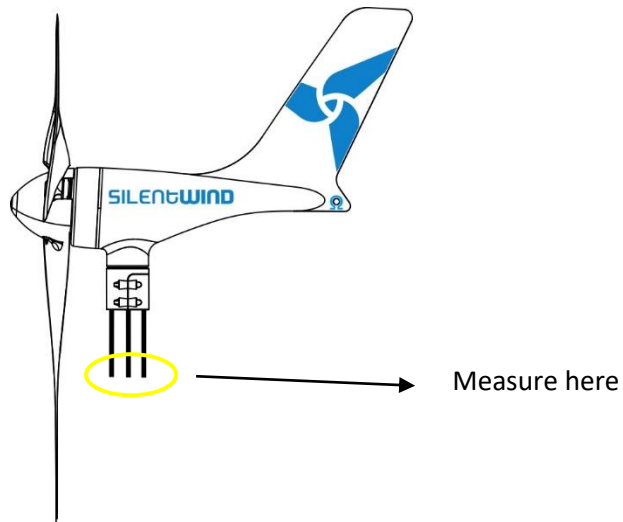
2.1 Near the controller

We start to measure the entire system near the controller:



- The values are described at **1.5** table.
- Stop the wind generator as described at the warning sign at **0**.
- Remove the AC cables from the controller to perform the measurements.
- If the measurements are out-of-range, go to next step.
- If the measurement values are correct, you might have a damaged controller. Please contact Silentwind.

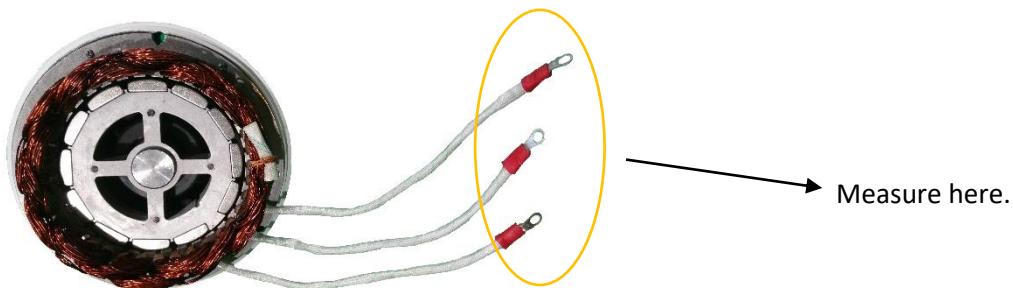
2.2 At the wind generator AC wires



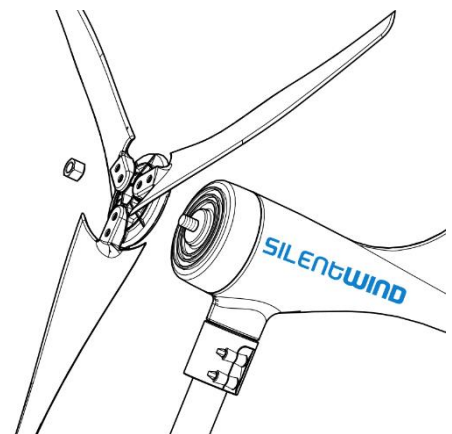
Measure directly in the Silentwind wind generator wires.

- The values are described at **1.5** table.
- If the measurements are in range, it means that the extension cables are faulty and should be repaired/replaced.
- If the measurements are out-of-range, proceed to the next step.

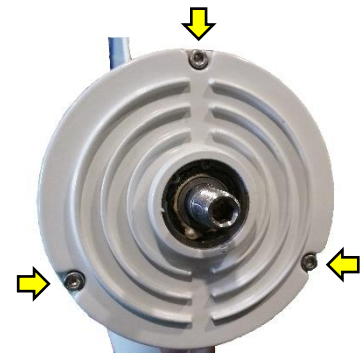
2.3 At the wind generator windings



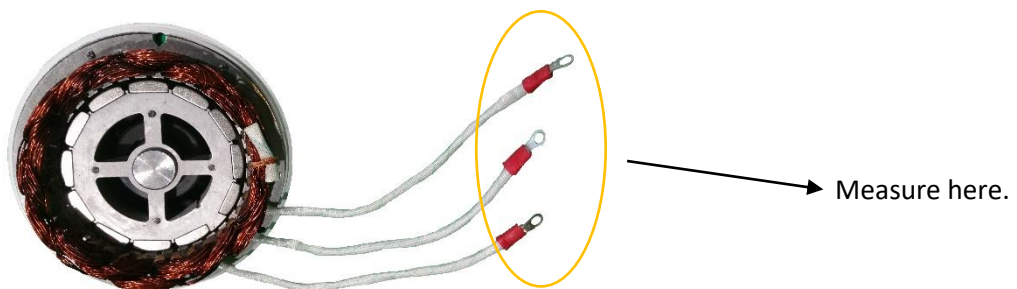
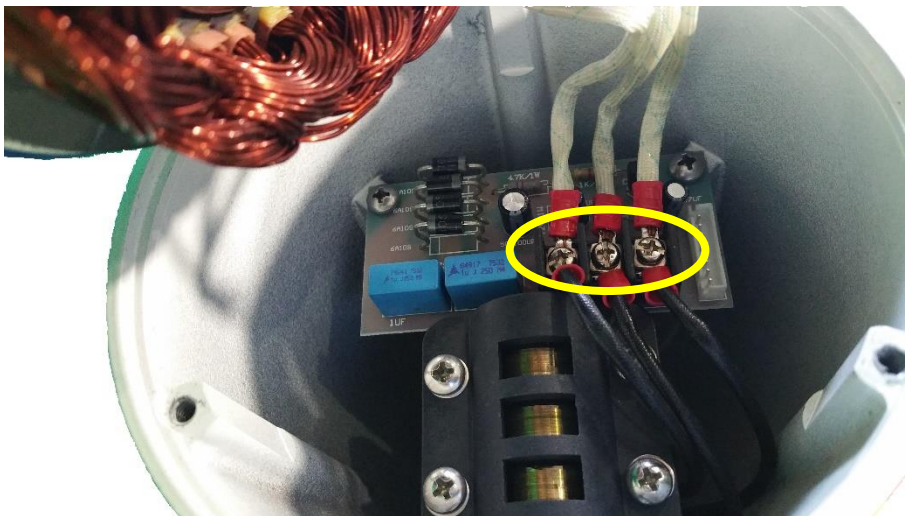
3.3.1. To be able to measure on the windings, you should remove the nose cone and the Hub + Blades by removing the M16 Nut (please read the assembly instructions on the user manual).



3.3.2. Unscrew the 3 screws on the front plate (please be careful not to damage the front face paint). The front face should go out easily.



3.3.3. Unscrew the wires that are connected to the PCB and perform the measurements (you don't need to completely remove the windings).



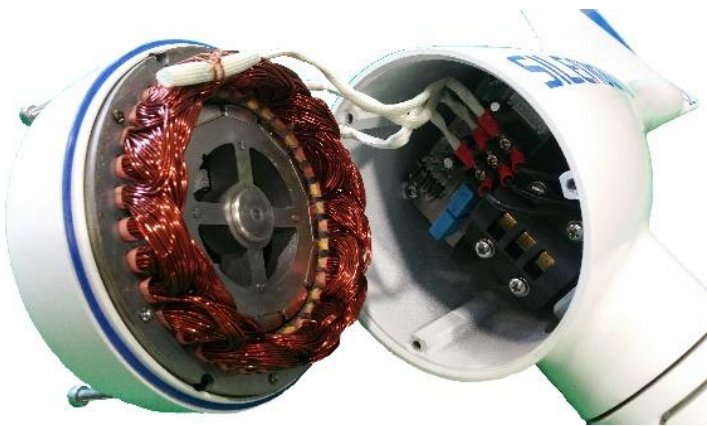
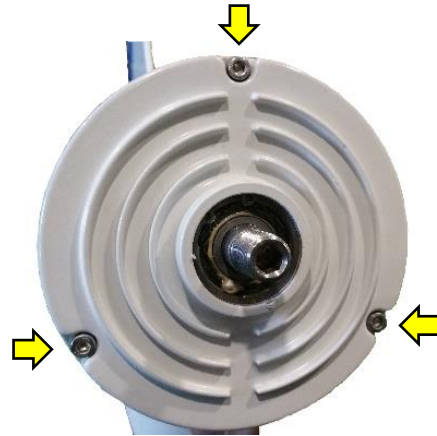
- If the readings on the windings are wrong, they are damaged and must be replaced. To remove the windings, please follow **How to remove the wind generator windings** chapter.
- If the readings are in range, you should clean the Slip Ring. Please read the **How to clean the Slip Ring** chapter.



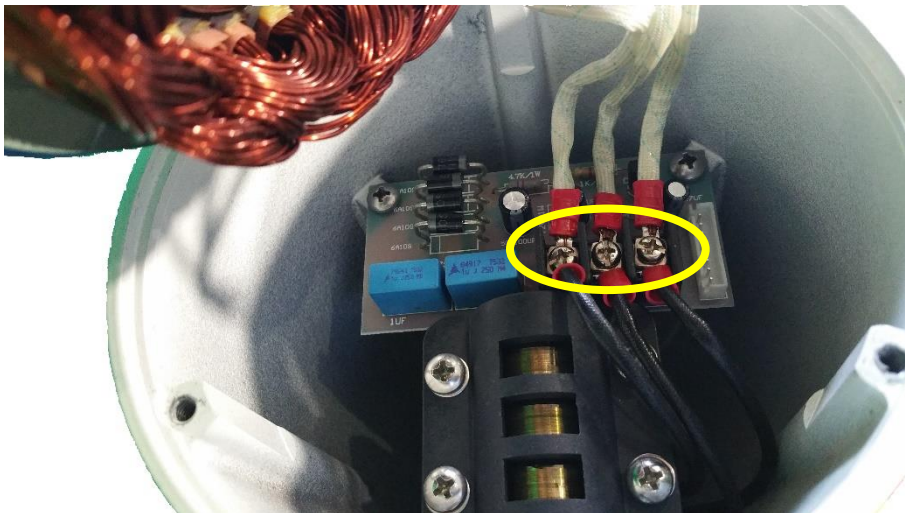
To assemble the device, follow the instructions backwards.
Do not forget to insert the O ring correctly!

3. How to remove the wind generator windings

Remove the 3 front face screws.
Be careful not to chip the front face paint.



The front face can be easily removed.



Unscrew the three marked screws and the front face set can be removed from the body.



Removing the rotor, it's not difficult but it can be a bit tricky. Please be careful not to harm yourself neither the equipment.

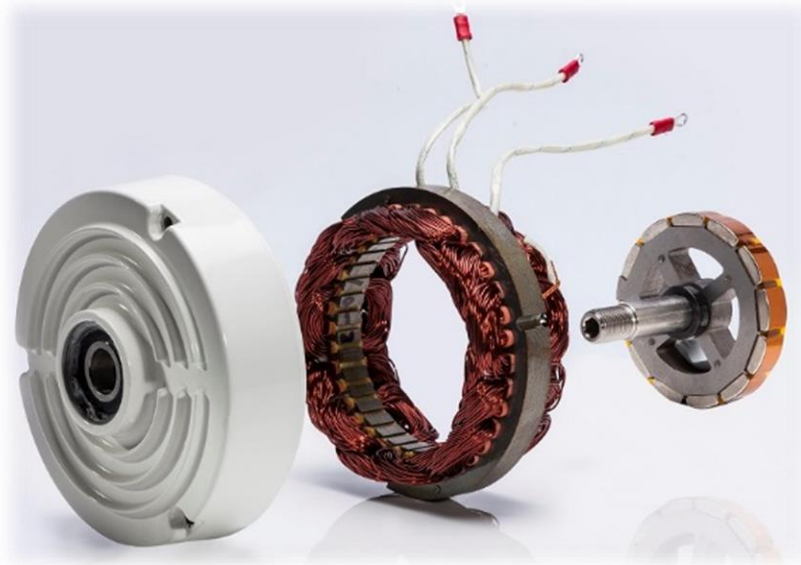
To remove the rotor, you can press the axis against a table to go half way then pull it out completely.

The windings are usually sold with the front face but if you pretend to completely remove the stator, you must use a rubber hammer and hit the front face to be able to release it.

As small press is used to assemble the front face and the stator, so we do not recommend the end-user to do this job since it's time consuming and there's a high risk of something goes wrong.



Please notice that industrial magnets are not toys! You can get seriously injured.



Front face set exploded view.



To assemble the device, follow the instructions backwards.

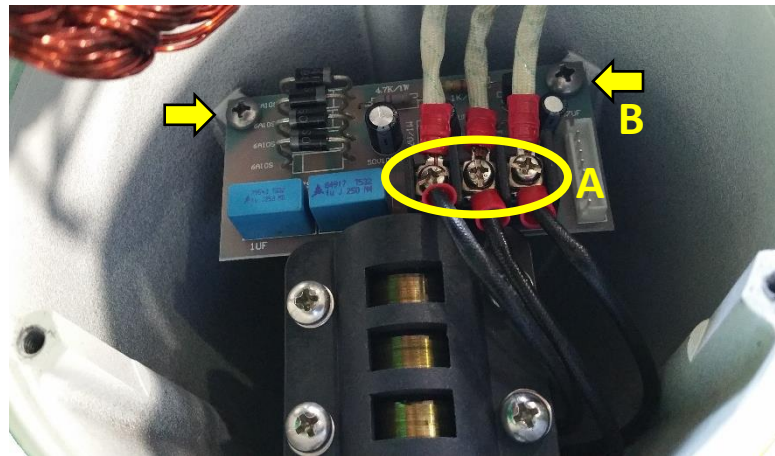
Do not forget to insert the O ring correctly!

Be careful not to chip the paint .

Use the correct tools.

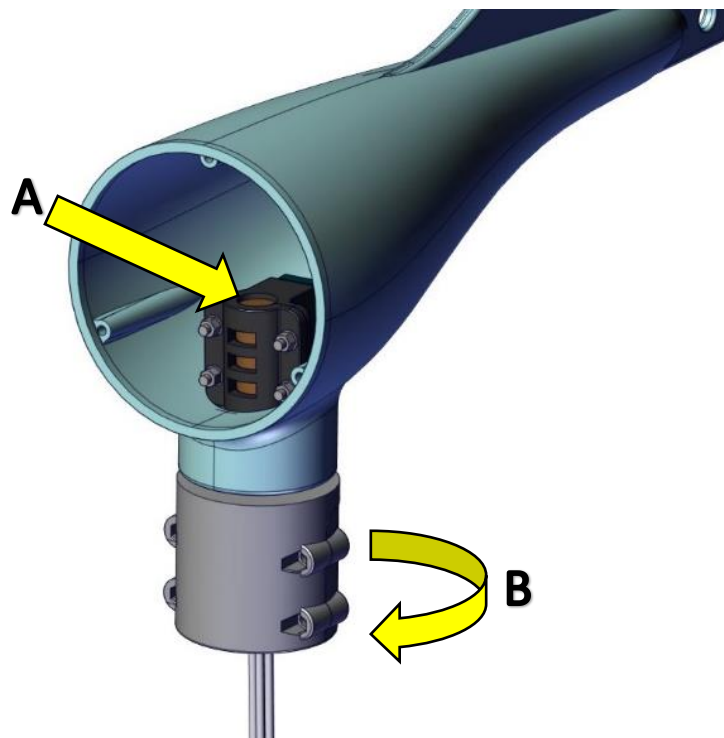
4. How to clean the Slip Ring

To be able to clean the Slip Ring, please read the previous chapter **How to remove the wind generator winding** to disassemble the front face.

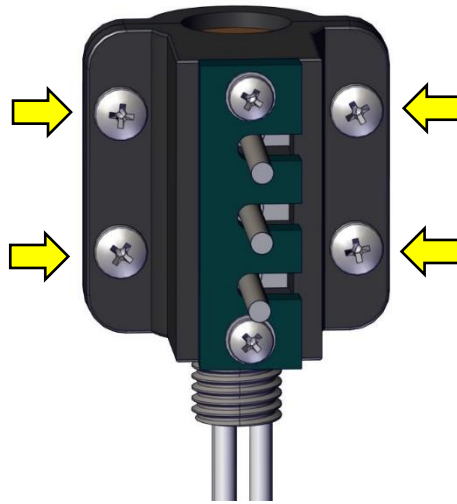


To remove the Slip Ring, you must first remove the PCB. Disconnect the three AC wires, unscrew the three screws (A) and disconnect them from the PCB.

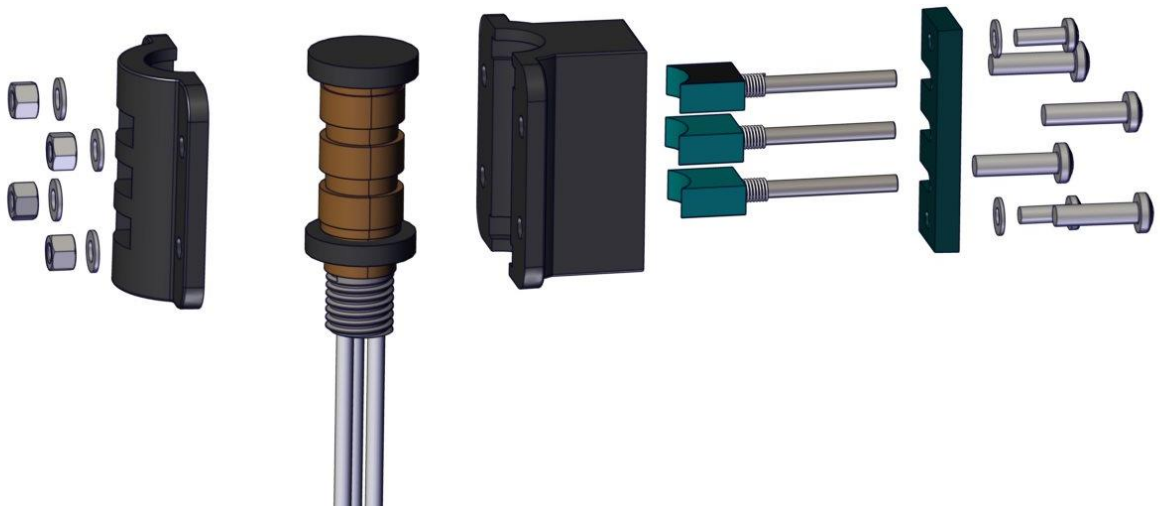
Unscrew the last two screws (B) and the PCB can be easily removed from the wind generator body.



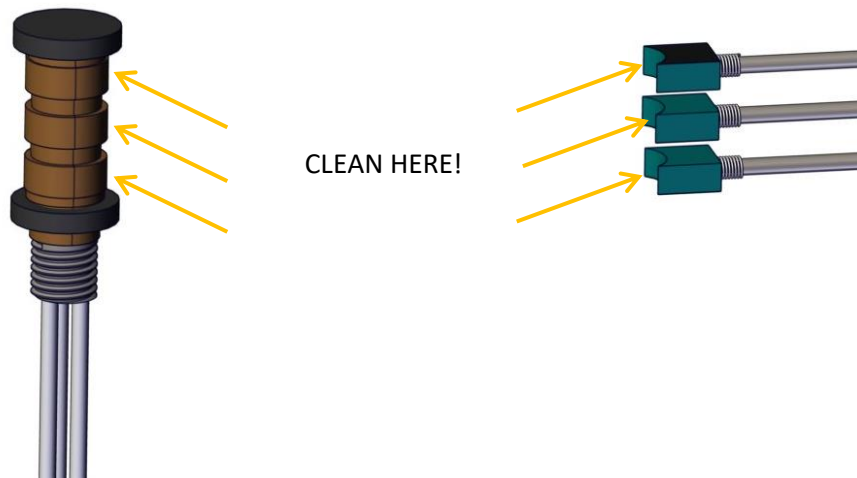
To unscrew the Slip Ring from the Body, tightly secure the Slip Ring top (A) with one 8mm Hex Key and rotate the Yaw shaft clockwise (B) until it gets loosed.



Remove the marked Slip Ring screws.
The Brushes have a compression spring. Please be careful when removing the Brushes.
You don't need to remove the other two screws to perform the Slip Ring cleaning.



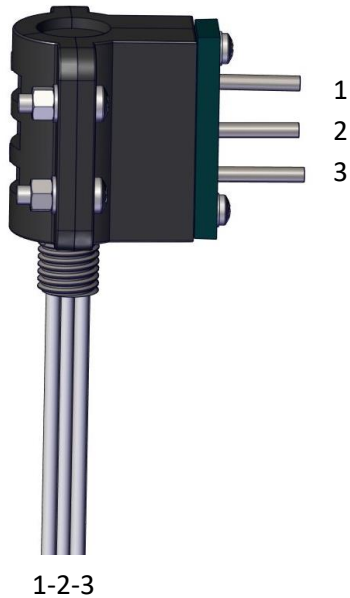
The Slip Ring Exploded view.



- First, clean the marked contacts with a clean cloth (see the above drawing).
- If the surfaces are not clean enough, use the cloth with a bit of Alcohol. Using Isopropyl Alcohol (Isopropanol) is more efficient but the standard Ethyl Alcohol 96% can also be used.
- The last resort will be using a high grit sand paper (600 grit up). Sand the contacts lightly. The objective here is to remove the dirt and copper oxidation. After sanding, clean the surface with a clean cloth.

The Slip Ring unit can last forever but if you notice that the wind generator performance is decreasing, the Slip Ring should be cleaned.

To assemble the Slip Ring, do it in reverse order.



After assembling the Slip ring and before assembling it on the wind generator body, please confirm the wire resistance with the multimeter.

Measure from 1 to 1, 2 to 2 and 3 to 3, it should act like a short-cut and it should not have any resistance. If you are measuring 2 Ω or 3 Ω or more, the value it's high and it will affect the wind generator performance.

Any other combinations you'll have an infinite value since there is no contact between each other.



To assemble the device, follow the instructions backwards.
Do not forget to insert the O ring correctly!
Be careful not to chip the paint .
Use the correct tools.

5. Silentwind help request contact

To speed up the help requests it's very important to send all necessary information right from the start.

Equipment's info:

The Wind Generator version, the controller's serial number (or model ID), the battery set (Gel, AGM, the Voltage, ...), if you are using PV panels, when you bought the equipment (to check the warranty), Smartphone or tablet OS version, Silentwind APP version, ...

Description:

A short problem description and any relevant information that can help to identify the root/cause.

If you have any questions or comments, do not hesitate to contact us:

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