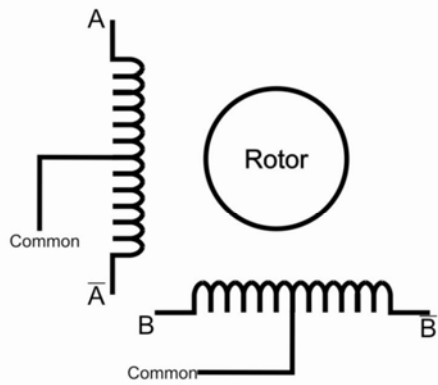
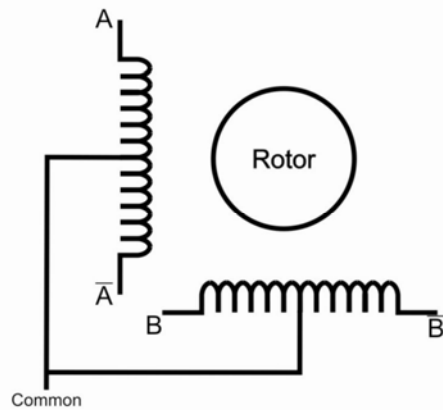


### How to differentiate the wires in Stepper Motor?

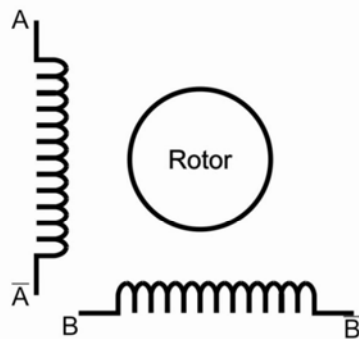
There are 2 types of steppers – Unipolar and Bipolar. In unipolar there can be a 5 wire or a 6 wire unipolar as shown below.



6 Wire Unipolar

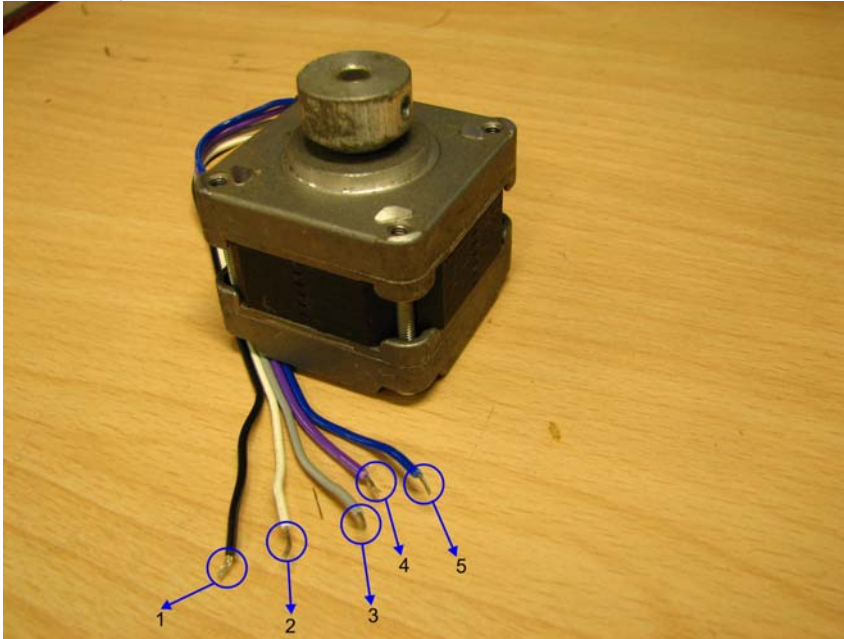


5 Wire Unipolar



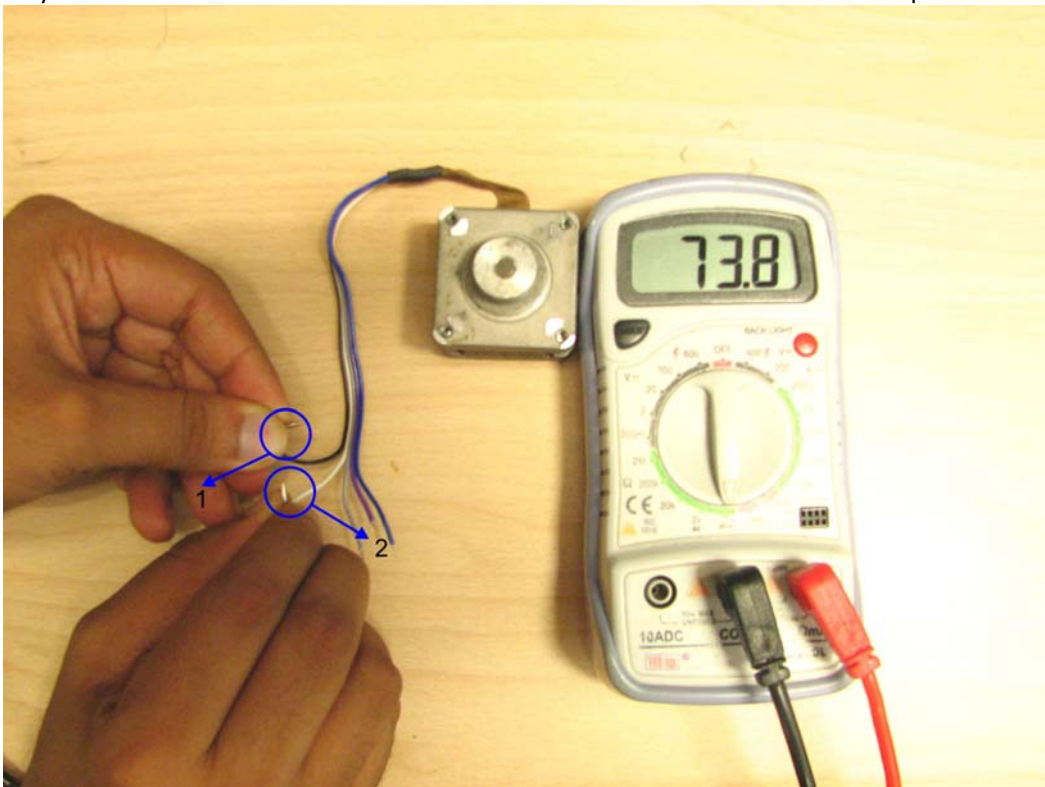
Bipolar

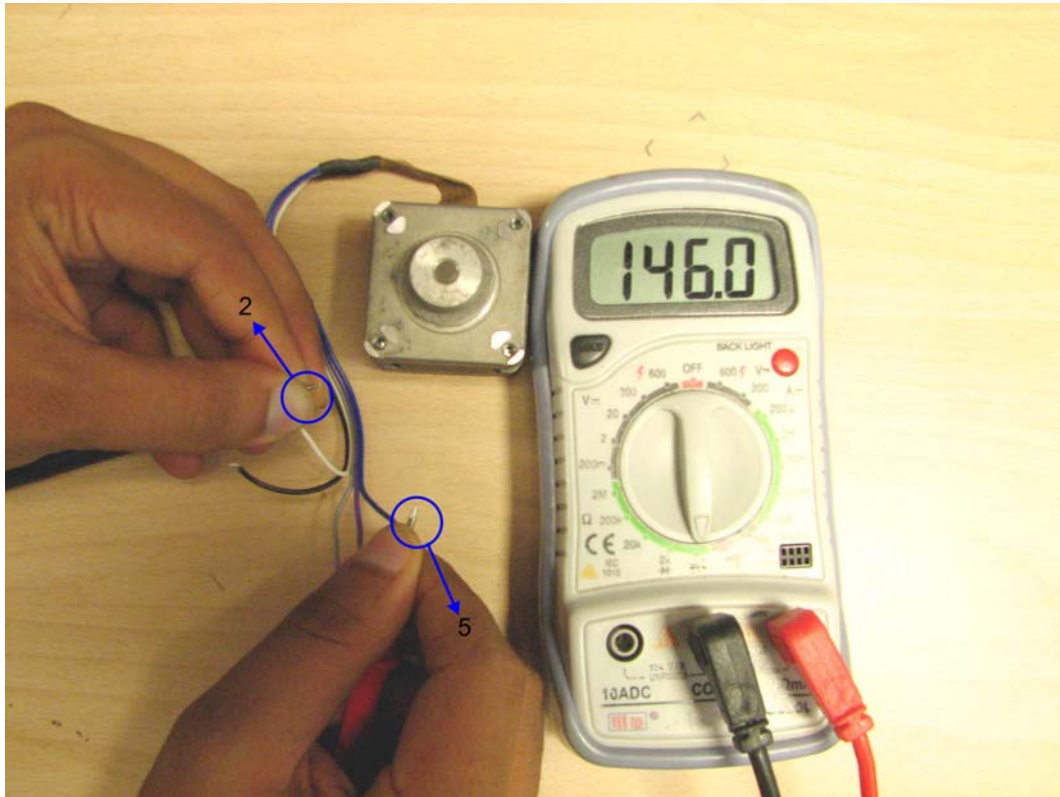
### 5 wire unipolar motor



### **Identifying the common terminal**

First let us identify the wires in a 5 wire unipolar stepper motor. This is a simple process. All you need is a multimeter. Just check the resistance between the wires in a sequence.





Looking at the image below you can see a 5 wire stepper motor. Now let us test the resistances. By looking at the diagram of a unipolar stepper motor we can see that the resistance between *common* and any of the terminals viz. A,  $\bar{A}$ , B,  $\bar{B}$  will be the same and the resistance between any of the two terminals A  $\bar{A}$ , B  $\bar{B}$  etc will be twice as much.

*So the wire which gives half the resistance, when connected with other wires, will be the common terminal.*

#### **Finding the sequence:**

So now the common terminal has been identified. Now give low to common and try giving high to the other wires in different sequence one by one. The sequence which gives a clockwise rotation will give you the consecutive terminals.

#### **6 wire unipolar motor**

##### **Identifying the common terminal**

Just have a look at the picture above and read the next few sentences and you will come to know how to identify the terminals. Keep checking the resistances in between pairs of wires till u determine which is A,  $\bar{A}$ , B,  $\bar{B}$ . When you try to check the resistance between A and B the meter will go out of range. Resistance between A and A` will be in the range of few ohms to a couple of hundred ohms. And the resistance between A and A<sub>common</sub> or  $\bar{A}$  and A<sub>common</sub> will be half that of A  $\bar{A}$ .

### **Bipolar Motor**

Having successfully identified terminals in a unipolar motor let us venture into bipolar motor. This is also a very simple job. Just check the resistance between pairs of wires. Whenever you check between A and B the meter will go out of range. If it is between A ~~A~~ or B ~~B~~ you will find some resistance.