

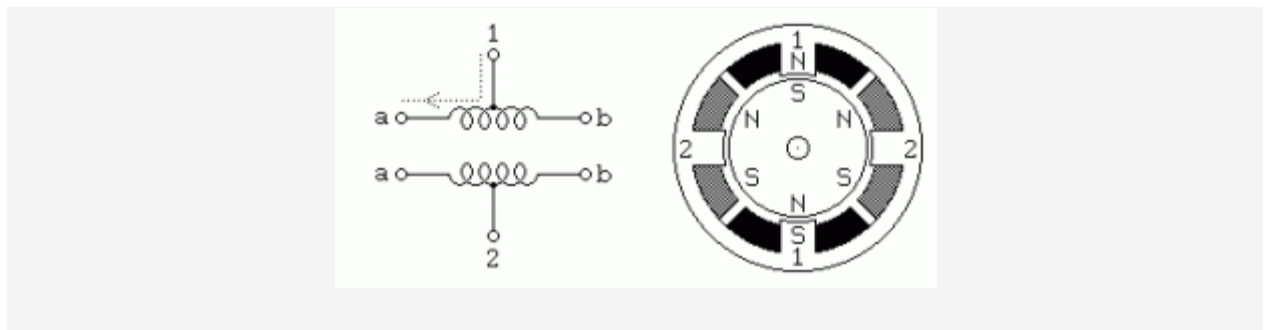
STEPPER MOTOR INTERFACING WITH MICROCONTROLLER

► Introduction

A stepper motor is a brushless, synchronous electric motor that converts electrical pulses into mechanical movement. Every revolution of the stepper motor is divided into a discrete number of steps, and the motor must be sent a separate pulse for each step. The stepper motor can only take one step at a time and each step is the same size. Since each pulse causes the motor to rotate a precise angle, the motor's position can be controlled without any feedback mechanism. As the electrical pulses increase in frequency, the step movement changes into continuous rotation, with the speed of rotation directly proportional to the frequency of the pulses. Step motors are used every day in both industrial and commercial applications because of their low cost, high reliability, high torque at low speeds and a simple, rugged construction that operates in almost any environment.

► Unipolar stepper motor

The unipolar stepper motor has five or six wires and four coils (actually two coils divided by center connections on each coil). The center connections of the coils are tied together and used as the power connection. They are called unipolar steppers because power always comes in on this one pole.

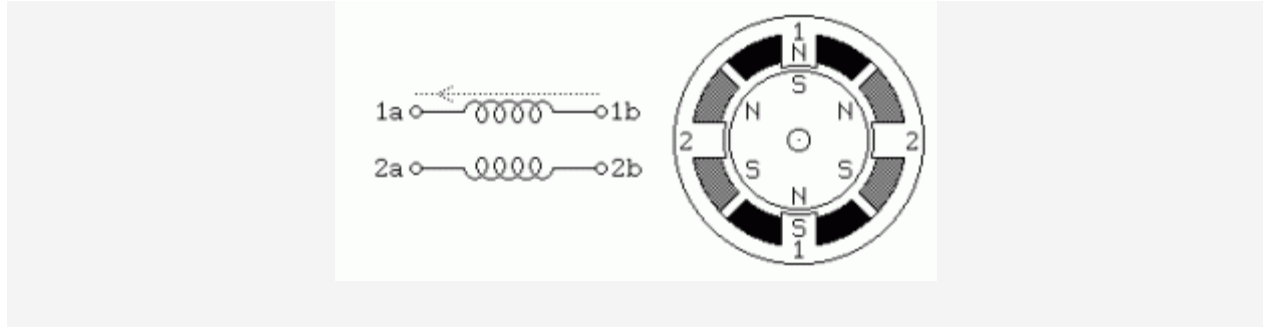


Unipolar Stepper Motor Windings

► Bipolar stepper motor

The bipolar stepper motor usually has four wires coming out of it. Unlike unipolar steppers, bipolar steppers have no common center connection. They have two independent sets of coils instead. You can distinguish them from unipolar steppers by measuring the resistance between the wires. You should find two pairs of wires with equal resistance. If you've got the leads of your meter connected to two wires that are not connected (i.e. not

attached to the same coil), you should see infinite resistance (or no continuity).



Bipolar Stepper Motor windings

Source : <http://vshamu.wordpress.com/2011/03/23/stepper-motor-interfacing-with-microcontroller/>