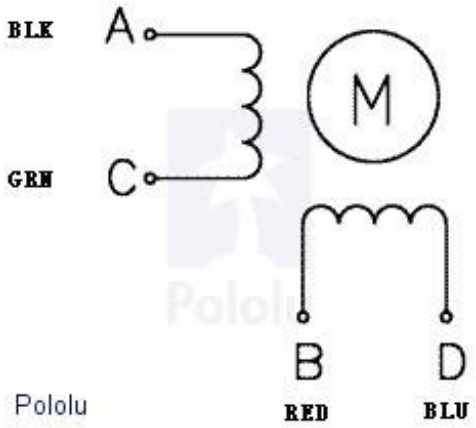
Stepper Motor: Bipolar, 200 Steps/Rev, 20×30mm, 3.9V, 0.6 A/Phase

Bipolar stepper motor wires are terminated with bare leads.



Bipolar stepper motor wiring diagram.

Overview

This small hybrid bipolar stepping motor has a 1.8° step angle (200 steps/revolution). Each phase draws 600 mA at 3.9 V, allowing for a holding torque of 180 g-cm (2.5 oz-in). The motor has four color-coded wires terminated with bare leads: black and green connect to one coil; red and blue connect to the other. It can be controlled by a pair of suitable H-bridges (one for each coil), but we recommend using a bipolar stepper motor driver.

Our 4 mm universal mounting hub can be used to mount objects on the stepper motor's 4 mm-diameter output shaft.

Specifications

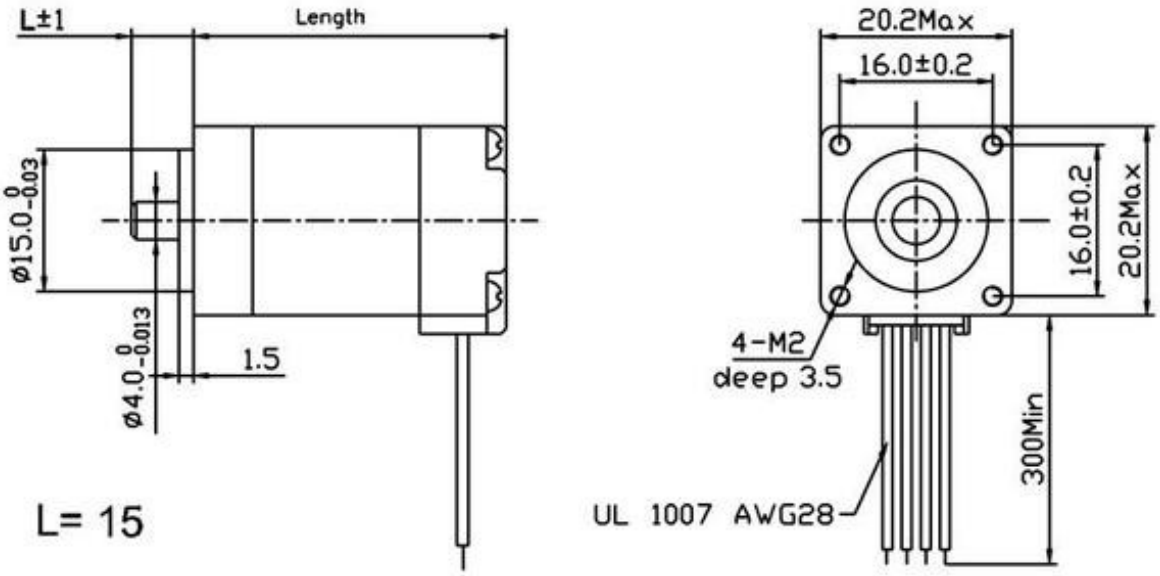
- Size: 20 mm square × 30 mm, not including the shaft (NEMA 8)
- Weight: 60 g (2 oz)
- Shaft diameter: 4 mm "D"
- Steps per revolution: 200
- Current rating: 600 mA per coil
- Voltage rating: 3.9 V
- Resistance: 6.5 Ω per coil

- **Holding torque: 180 g-cm (2.5 oz-in)**
- **Inductance: 1.7 mH per coil**
- **Lead length: 30 cm (12″)**

More specifications are available in the datasheet (51k pdf).

Dimensions

The following diagram shows the stepper motor dimensions in mm. The dimension labeled "Length" is 30 mm. The output D-shaft has a length of 15 mm and a 4 mm diameter with a section that is flattened by 0.5 mm. This shaft works with our 4 mm universal mounting hub.



The inside of a bipolar stepper motor.

Stepper Motor Applications

Stepper motors are generally used in a variety of applications where precise position control is desirable and the cost or complexity of a feedback control system is unwarranted. Here are a few applications where stepper motors are often found:

- **Printers**
- **CNC machines**
- **3D printer/prototyping machines**
- **Laser cutters**

- Pick and place machines
- Linear actuators
- Hard drives

Pololu’s assortment of stepper motors.

Note: This stepper motor is SOYO part number SY20STH30-0604A.