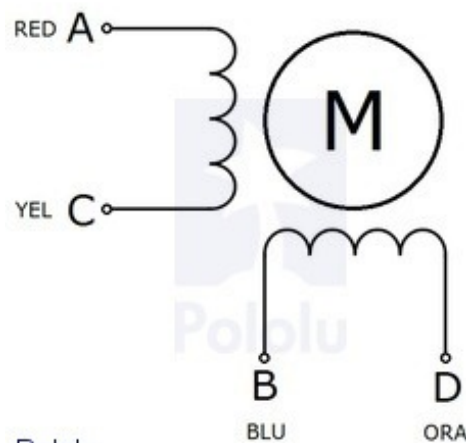


Sanyo Miniature Stepper Motor: Bipolar, 200 Steps/Rev, 14×30mm, 6.3V, 0.3 A/Phase



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Bipolar stepper motor wires are terminated with bare leads.



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Sanyo bipolar stepper motor wiring diagram.

Overview

This tiny bipolar stepping motor from Sanyo has a 1.8° step angle (200 steps/revolution). Each phase draws 300 mA at 6.3 V, allowing for a holding torque of 66 g-cm (0.92 oz-in). The motor has four color-coded wires terminated with bare leads: red and yellow connect to one coil; orange 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. It is available with a single shaft or double shaft.

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

Specifications

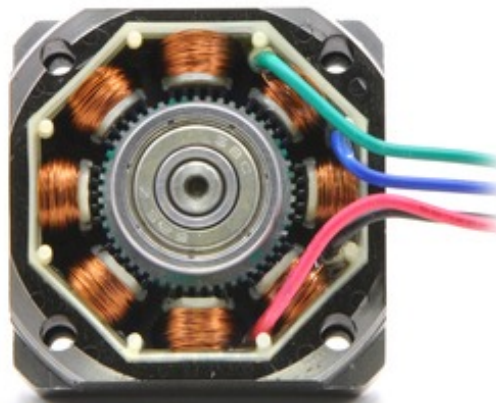
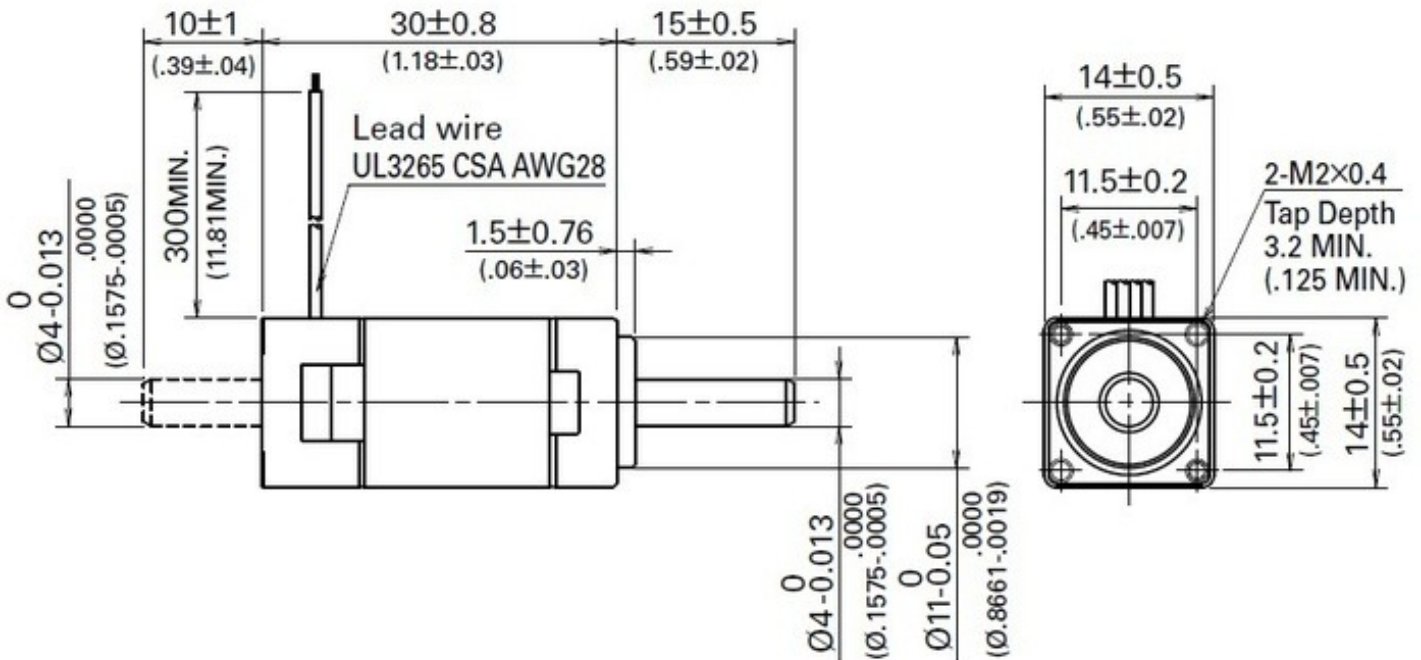
- **Size:** 14 mm square × 30 mm, not including the shaft
- **Weight:** 27 g (single shaft) or 28 g (double shaft)
- **Shaft diameter:** 4 mm

- Steps per revolution: 200
- Current rating: 300 mA per coil
- Voltage rating: 6.3 V
- Resistance: 21 Ω per coil
- Holding torque: 66 g-cm (0.92 oz-in)
- Inductance: 4.2 mH per coil
- Lead length: 30 cm (12")

More specifications are available in the datasheet (125k pdf).

Dimensions

The following diagram shows the stepper motor dimensions in mm. This motor is 30 mm in length. The output shaft has a length of 15 mm and a diameter of 4 mm. The second shaft on the dual version has a length of 10 mm and a diameter of 4 mm. This shaft works with our 4 mm universal mounting hub.



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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 (e.g. RepRap)**
- **Laser cutters**
- **Pick and place machines**
- **Linear actuators**
- **Hard drives**



Sanyo stepper motors; from left to right: 14mm single shaft, 42×18.6mm, 50×11mm, 14mm double shaft



Note: Sanyo Denki calls this product the “SANMOTION F2 Small Size 2-Phase Stepping Motor Model SH2141-5541” and “SH2141-5511”.

[Documentation on producer website.](#)

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