

# CN4A12 & CN4A24

MINIATURE SPEED CONTROLS



3879 SOUTH MAIN STREET 714-979-6491  
SANTA ANA, CALIFORNIA 92707-5710 U.S.A.

This manual contains information for installing and operating the following Centent Company products:

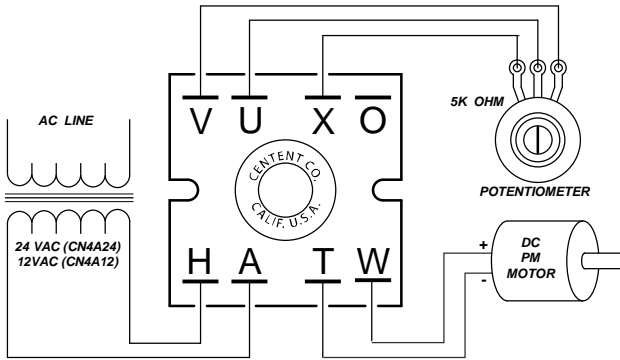
- CN4A24 Miniature Speed Control
- CN4A12 Miniature Speed Control

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## GENERAL DESCRIPTION

The Centent CN4A12 and CN4A24 speed controls are designed for direct current (DC), permanent magnet (PM) motors. They are suitable for applications where high reliability, small size and close speed regulation are required. The maximum output voltage is 12 volts for the CN4A12 and 24 volts for the CN4A24. Depending on the motor selected; the speed can be controlled from zero to 25,000 RPM by turning the knob on the Speed potentiometer. Feedback circuitry utilizes the motor's "back EMF" to provide a flat speed-torque curve.

## VERSIONS

The speed controls are available in two versions. The standard version has spade terminals for solderless connectors. The control is encapsulated in a high density, heat conductive epoxy with a plastic outer shell. This provides a rugged and compact design that resists abuse and contamination. Mounting slots are provided on two sides of the module for #4 or #6 machine screws.

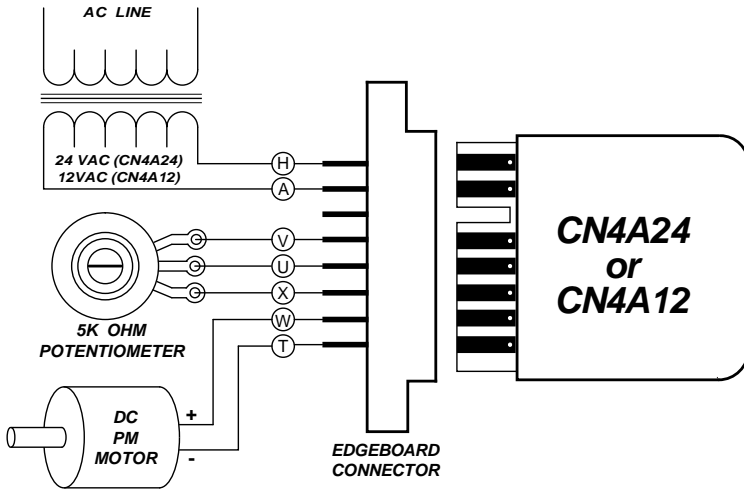
The shielded version is slightly smaller and has a metallic cover. It is also encapsulated in epoxy, but has no mounting slots or holes and is normally secured with a metallic grounding strap or clamp. This version has printed circuit board fingers for use with edgeboard connectors.

## INSTALLATION

The CN4A12 and CN4A24 enable the user to operate DC PM motors with a minimum of additional components; requiring only a step down transformer and a potentiometer to control motor speed.

The transformer secondary voltage is 12 VAC for the CN4A12 and 24 VAC for the CN4A24. The transformer volt-amp (VA) rating must be sufficient for the motor used. Maximum (motor) current is 4 amps.

The Speed Potentiometer resistance is 5K ohm. Use 'linear taper' type potentiometers. **Do not use 'audio taper' devices; they will compress speed regulation into a small part of the normal adjustment range.**



Electrical connections on the standard version are made by using .187" solderless connectors or by soldering directly to the spade terminals on the module.

The shielded version uses an 8 position edgeboard connector with .156" center spacing. The circuit board is notched between terminals 'A' and 'V' for keyed connectors. Each finger has a hole for soldering a wire directly to the board if desired.

### INPUT VAC

Terminals 'H' and 'A' are the power supply inputs. These terminals connect to the secondary of the step-down power transformer. The primary of the transformer should be fused for short circuit protection.

### TERMINAL 'H' & 'A'

### MOTOR OUTPUTS

Terminal 'W' is connected to the positive motor lead. Terminal 'T' is connected to the negative motor lead. **If the motor leads are reversed to change motor direction; the correct switch type (break-before-make) must be used.**

### TERMINAL 'T' & 'W'

### SPEED POT CCW

Terminal 'V' is the negative voltage reference for the speed potentiometer. Connect this pin to the negative or 'CCW' terminal of the potentiometer.

### TERMINAL 'V'

### SPEED INPUT

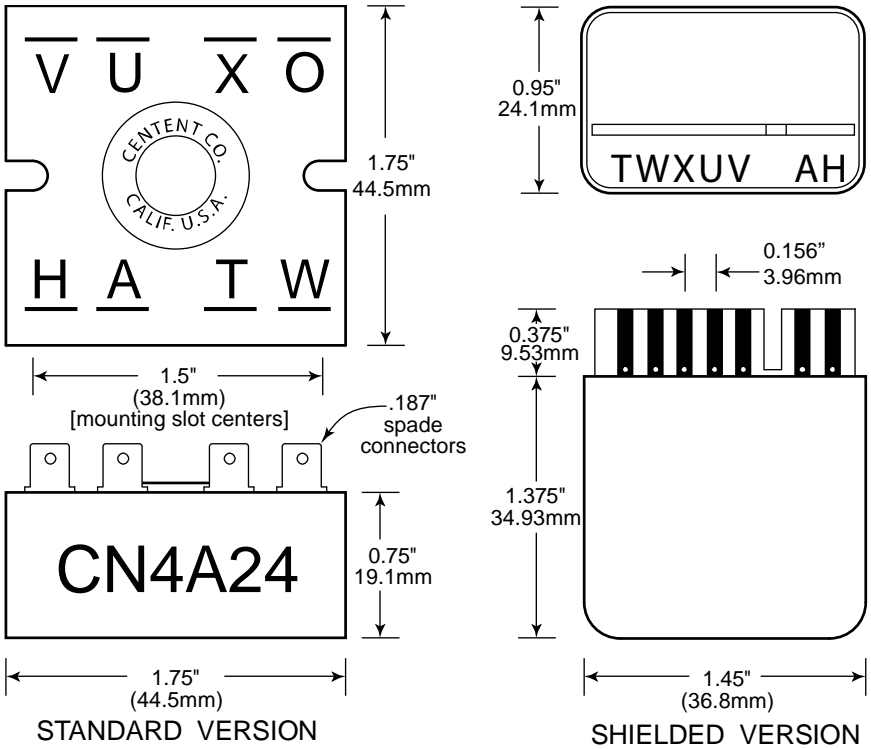
Terminal 'U' is the speed control input to the CN4A24. Connect this pin to the wiper of the potentiometer.

### TERMINAL 'U'

### SPEED POT CW

Terminal 'X' is the positive voltage reference for the speed potentiometer. Connect this pin to the positive or 'CW' terminal of the potentiometer.

### TERMINAL 'X'



### SPECIFICATIONS

Parameter	Min	Max	Unit
Input Voltage			
CN4A12	10.5	13.5	VAC
CN4A24	21	27	VAC
Motor Output			
CN4A12	0	15	VDC
CN4A24	0	30	VDC
Stall Current		4	amp
Continuous Current		4	amp
Speed Regulation	-5	+5	%
Speed Range	30:1		
Operating Temperature	-40	75	°C
Weight			
Standard Version	69	84	gram
Shielded Version	64	78	gram