KB ELECTRONICS 8811006

Instruction Manual

KB Electronics 8811006 Solid State Variable Speed AC Electric Motor Control

Model: KBWC-13K (2.5 Amp)
Brand: KB ELECTRONICS

1. Product Overview

The KB Electronics KBWC-13K Solid State Variable Speed AC Electric Motor Control is designed to provide infinite variable speed for shaded pole and Permanent Split Capacitor (PSC) motors. This control unit allows for precise adjustment of motor speed, making it suitable for various applications where airflow or motor speed regulation is desired.

It is designed for installation in a standard 2" x 4" electrical wall box and is UL & CSA Approved, ensuring safety and compliance.

Figure 1: KBWC-13K Motor Control Unit. This image shows the front faceplate with the "Vari-Speed" and "Solid State" labels, a central control knob, and the wiring extending from the back of the unit.

Key Features:

- Designed for Standard 2" x 4" Electrical Wall Box.
- 2.5 Max amps, 115 Volts.
- UL & CSA Approved for safety and quality.
- Provides infinite variable speed control.

Applications:

- Fans (e.g., attic fans, bathroom exhaust fans)
- Blowers (e.g., fireplace blowers)
- Humidifiers
- Ventilators

Important Note: Not to be used with Capacitor Start or Capacitor Run Motors unless specifically wired for

PSC motors (main winding controlled, auxiliary winding bypassed). Motor must be run with sufficient torque to prevent stalling, and must have a fan blade installed on the shaft (direct drive) to cool the motor. Not to be used with gear motors.

2. Setup and Installation

Installation of the KBWC-13K motor control should be performed by a qualified electrician or an individual with a thorough understanding of AC power circuits and electronics. Always ensure power is disconnected at the circuit breaker before beginning any electrical work.

Wiring Instructions:

1. **Safety First:** Turn off power to the circuit at the main electrical panel. Verify power is off using a voltage tester.
2. **Mounting:** The control unit is designed to fit into a standard 2" x 4" electrical wall box. Secure the unit within the box using the provided screws.
3. **Connections:**
    - Connect the incoming 115V AC line (hot) to one of the control's input wires.
    - Connect the other control wire to the motor's hot lead.
    - Connect the motor's neutral lead directly to the incoming neutral line.
    - Ensure all connections are secure and insulated with wire nuts or appropriate connectors.
4. **Faceplate Installation:** Once wiring is complete and secure, attach the faceplate to the wall box using the two screws provided.
5. **Power On:** Restore power at the circuit breaker.

Caution: This device operates at AC line voltages. Disassembly or modification should only be attempted by trained professionals. Improper installation can lead to electrical shock, fire, or damage to equipment.

3. Operating Instructions

The KBWC-13K motor control features a simple rotary knob for adjusting the motor speed. The control offers a continuous range from OFF to LOW to HIGH.

Using the Control Knob:

- **OFF:** Rotate the knob counter-clockwise to the "OFF" position to completely shut off power to the motor.
- **LOW:** Rotate the knob clockwise from "OFF" to gradually increase the motor speed from its lowest setting.
- **HIGH:** Continue rotating the knob clockwise to reach the maximum motor speed.

The control provides a smooth, infinite variable speed adjustment between the minimum and maximum settings. Adjust the knob to achieve the desired motor speed for your application.

Note: Some motors, particularly PSC motors, may exhibit noise or sluggish starting at very low-speed settings. Ensure the motor does not stall, as this can cause overheating and damage. The control has a fine adjustment for setting the minimum fan speed to prevent accidental stalling.

4. Maintenance

The KB Electronics Solid State Variable Speed AC Electric Motor Control is designed for long-term, maintenance-free operation. As a solid-state device, it contains no moving parts that require lubrication or regular servicing.

General Care:

- Keep the control unit clean and free from dust and debris. A soft, dry cloth can be used for cleaning the faceplate.
- Ensure the operating environment is within specified temperature and humidity ranges to prevent damage to electronic components.
- Periodically check the wiring connections for tightness, especially if the unit is subject to vibration. Ensure power is off before checking connections.

Do not attempt to open the sealed control unit. There are no user-serviceable parts inside. Opening the unit may void the warranty and expose you to hazardous voltages.

5. Troubleshooting

This section provides guidance for common issues you might encounter with your motor control unit. For problems not listed here, or if solutions do not resolve the issue, contact qualified service personnel.

Problem	Possible Cause	Solution
Motor does not start or runs intermittently.	No power to the unit; loose wiring connections; motor stalled; incompatible motor type.	• Check circuit breaker and power supply. • Verify all wiring connections are secure (ensure power is off first). • Ensure the motor is not stalled. Increase speed setting slightly. • Confirm motor is a shaded pole or PSC type, and not a capacitor start/run motor without proper wiring.
Motor runs too slow or does not reach desired speed.	Control knob not set to maximum; motor efficiency; minimum speed adjustment.	• Rotate the control knob fully clockwise towards "HIGH". • Some motors have inherent low efficiency at reduced speeds. • Check if there is an internal minimum speed adjustment (often a small trimmer potentiometer) that might be limiting the range. Consult a professional if adjustment is needed.
Motor makes humming noise at low speeds.	Asymmetrical triggering of the triac; motor type/condition.	• This can be a characteristic of phase-type speed controllers with certain motors, especially older or poorly mounted ones. • Ensure the motor is not overloaded or struggling. • Consider increasing the speed slightly to reduce the hum.
Control unit feels warm during operation.	Normal operation; excessive load; insufficient ventilation.	• Some warmth is normal for electronic controls. • Ensure the motor's amperage does not exceed the control's maximum rating (2.5 Amps for this model). • Verify the installation location allows for adequate air circulation around the unit.

Problem	Possible Cause	Solution

6. Specifications

Attribute	Detail
Brand	KB ELECTRONICS
Model Number	8811006 (KBWC-13K)
Max Amperage	2.5 Amps
Voltage	115V
Compatibility	Shaded Pole and PSC Motors (with proper wiring)
Certifications	UL & CSA Approved
Mounting	Standard 2" x 4" Electrical Wall Box
Package Dimensions	4.9 x 3 x 2.1 inches
Item Weight	0.16 ounces
Date First Available	March 2, 2010
Manufacturer	KB Electronics

7. Warranty and Support

For information regarding product warranty, returns, or technical support, please contact KB Electronics directly or refer to the seller's return policy where the product was purchased.

This product is generally subject to a 30-day return policy from the point of purchase, provided it is in new condition. Controls that have been installed are typically not returnable.

For detailed technical assistance or specific application questions, it is recommended to reach out to the manufacturer:

Manufacturer: KB Electronics

Website: www.kbelectronics.com (Example link, actual link may vary)

Please note that contact information and policies may change. Always refer to the most current information provided by the manufacturer or your point of purchase.