

48V Fan Controller

Installation and User's Manual

Model:
CV 48-1 Fan

Rev 112112

Please contact Customer Support at 1-800-24VOLTS for further information.



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ABOUT NEXTEK POWER SYSTEMS

Nextek Power Systems AC/DC integration technology represents a breakthrough in on-site electrical management, combining the availability of AC power with the quality and efficiency of a DC supply.

NEXTEK PRODUCT BENEFITS

- Easy conversion of AC lighting fixtures to DC-powered units
- Easy conversion of AC grid power into DC power for commercial building applications
- Highly efficient management of peak loads
- Future-proof lighting and other systems to be developed
- Nextek Power Systems Direct Coupling® Technology, directly connects clean power generated at a building to its electronic loads inside cutting down on overall power consumption, boosts electricity generated and stored on-site, and delivers a robust renewable energy ready network.

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Model: CV 48-1 Fan

PRODUCT INTRODUCTION

48 Volt Fan Controller

The Nextek 48 Volt Fan Controller outputs an adjustable voltage to Nextek fans when connected to a 36/48 volt source. The unit includes a voltage control potentiometer to adjust fan speed, and a toggle switch that reverses the fan direction or disconnects the controller from the fan.

Mechanical Specifications

Weight: less than 0.5 lb.

Size: 4" x 2.5" x 1.25" (resembling a household lightswitch cover)

Operating Temperature: -10 to 50 deg. C

Humidity: 90% non-condensing

Electrical Specifications

Input Voltage (DC): 33-60 VDC

Output Voltage (V) +/- 2%

Adjustable by POT: 12.5 - 29.5 VDC

Output voltage reversal using toggle switch

Output Current (DC): 1A

Short term (2 min), current limited 1.2A

The following specifications are limited by fuse characteristics:

Input Fuse: 3A self-resetting

Output Fuse: 1.3A self-resetting

Enclosure: open frame for mount in single gang box

Quiescent Current: 15 mA

(With switch off: 0.0 mA)

Transient Protection: all inputs and outputs

Efficiency: 90% to 96% depending on loading and state of charge.



1.0 SAFETY

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- 1.1 **SAVE THESE INSTRUCTIONS**– This manual contains important safety and operating instructions for the Nextek 48V Fan Controller, Model CV 48-1 Fan, that shall be followed during installation and maintenance of this product.

The following symbols are used throughout this manual to indicate potentially dangerous conditions or mark important safety instructions:



DANGER:

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING:

Indicates a potentially dangerous condition. Use extreme caution when performing this task.



CAUTION:

Indicates a critical procedure for safe and proper operation of the controller.



NOTE:

Indicates a procedure or function that is important for the safe and proper operation of the controller.

- 1.2 Before using the controller, read all instructions and cautionary markings.
- 1.3 Electrical hazards are probably the most common hazards throughout the industry. Virtually all workplaces have electrical installations and use electricity.
- 1.4 It is very important that all industry employees be familiar with electrical hazards and know how to protect themselves when working on, near, or with electricity. In most cases, industry electrical and electronic equipment is designed for both maximum safety and efficiency. However, potentially hazardous conditions such as inadvertent contact with hazardous voltages may exist while performing servicing and maintenance, handling materials, or cleaning.
- 1.5 The improper use of electrical extension cords and portable electrical equipment can result in hazardous exposure.

- 1.6 **WARNING - RISK OF ELECTRICAL SHOCK**



Read all of the instructions and cautions in the manual before beginning installation.

1.0 SAFETY

1.7 DANGER – TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, CAREFULLY FOLLOW THESE INSTRUCTIONS

1.7.1 Do not disassemble or attempt to repair the controller.

1.8 INSTALLATION SAFETY PRECAUTIONS

1.8.1 Mount the controller indoors. Prevent exposure to the elements and do not allow water to enter the controller.

1.8.2 The controller is to be connected to DC circuits only.

2.0 STANDARDS AND REQUIREMENTS

2.1 All DC cable types must meet all local and national codes

2.2 Shut off all DC circuit breakers or fuses before installing any unit into the field

3.0 REGULATORY INFORMATION

NOTE: This section contains important information for safety and regulatory requirements.

3.1 The controller should be installed by a qualified technician according to the electrical rules of the country in which the product will be installed.

3.2 FCC Requirements:

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Nextek Power Systems, Inc. for compliance could void the user's authority to operate the equipment.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

4.0 INSTALLATION QUALIFICATIONS

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- 4.1 Installation work and electrical wiring of permanently-connected units must be performed only by qualified service personnel in accordance with all applicable codes and standards, including fire-rated construction.

5.0 INSTALLATION PROCEDURE

5.1 Recommended Tools

5.1.1 This installation may require the following:

Slotted screwdriver

Wire strippers

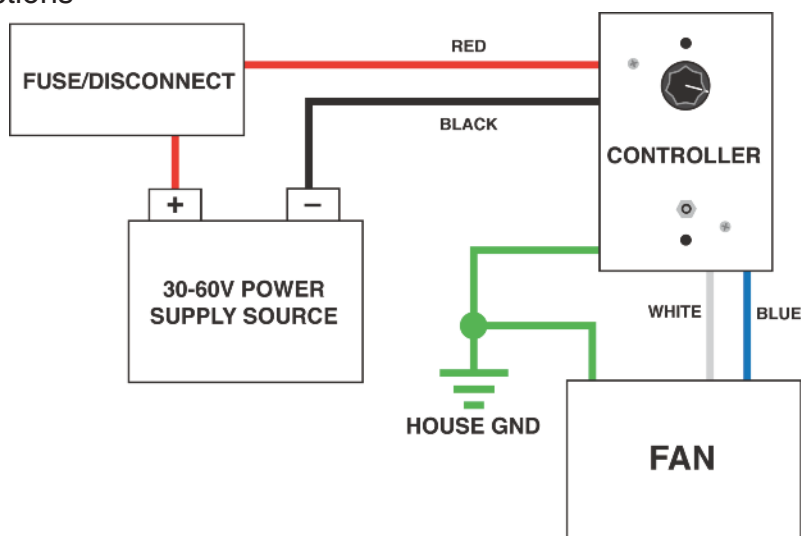
Wire cutters

Pliers

5.2 Mounting

5.2.1 The unit mounts in a fashion similar to a typical light switch faceplate to a single gang junction box.

5.3 Connections



WARNING:

To be installed and connected by qualified personnel only. Ensure all power sources are disconnected when making any connections to this unit.

5.3.1 Strip and connect the ground, using wire of sufficient gauge (minimum 16 AWG). Connect the green wire to the junction box ground. This connection is used for electrical noise reduction.



WARNING:

To avoid flash or burn injuries, extreme care must be taken when making battery connections. Do not short the battery or output.

5.0 INSTALLATION PROCEDURE

- 5.3.2 Strip and connect the Load Positive, using wire of sufficient gauge (minimum 16 AWG). Connect the white lead to the Fan + wire. Environmentally seal the connections if required. This is the 48V fan connection.



NOTE: This connection may be reversed with the Controller Toggle Switch.

- 5.3.3 Strip and connect the Load Negative, using wire of sufficient gauge (minimum 16 AWG). Connect the blue lead to the Fan – wire. Environmentally seal the connections if required. This is the 48V fan connection.



NOTE: This connection may be reversed with the Controller Toggle Switch.

- 5.3.4 Strip and connect the source Negative, using wire of sufficient gauge (minimum 16 AWG). Connect the black lead to the source – wire. Environmentally seal the connections if required. This is the 30-60V source connection.

- 5.3.5 Strip and connect the source Positive, using wire of sufficient gauge (minimum 16 AWG). Connect the red lead to the source + wire. Make sure this is the final connection in the sequence. Environmentally seal the connections if required. This is the 30-60V source connection.



NOTE: There may be a small spark as the source charges the internal capacitors.

- 5.3.6 Secure the unit to the junction box using the two one-inch, slotted machine screws provided.

6.0 CONTROLLER OPERATION

6.1 Controller Operation

- 6.1.1 Adjust the fan speed by turning the dial for the speed control potentiometer.
- 6.1.2 The toggle switch has three positions. Use the switch to reverse the direction of the fan rotation, by flipping it from side to side. The center position disconnects the fan from the controller.



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