



Decora
Home Controls

WALL MOUNTED CONTROLLER

CAT. NO. 16400

AND CAT. NO. 16450 KEYPADS
(Sold Separately)

RATED: 120VAC, 60HZ

INSTALLATION INSTRUCTIONS



DI-000-16400-00D



LIMITED 2 YEAR WARRANTY AND EXCLUSIONS

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Leviton is free of defects in materials and workmanship under normal and proper use for two years from the purchase date. Leviton's only obligation is to correct such defects by repair or replacement, at its option, if within such two year period the product is returned prepaid, with proof of purchase date, and a description of the problem to **Leviton Manufacturing Co., Inc., Attn: Quality Assurance Department, 59-25 Little Neck Parkway, Little Neck, New York 11362-2591**. This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose, but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to two years. Leviton is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, lost sales or profits or delay or failure to perform this warranty obligation. The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.

For Technical Assistance Call:
1-800-824-3005 (U.S.A. Only)
www.leviton.com



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INTRODUCTION

Leviton Residential Powerline Carrier Components are designed to provide the greatest signal integrity and noise immunity possible. However, in some environments intense electrical noise can cause interference with the signal. Leviton has developed hardware and techniques for overcoming this interference when properly applied.

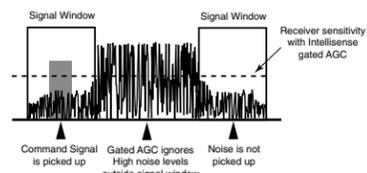
LEVITON'S DHC DEVICES FEATURE INTELLISENSE, THE RIGHT TYPE OF AUTOMATIC GAIN CONTROL (AGC)

Leviton DHC devices use Intellisense, a special gated-type of AGC, to help eliminate noise problems. This circuit feature is ideal for powerline carrier systems because it only operates during the signal window when receivers listen for command signals. Noise levels in the signal window are never as high as they are during other portions of the AC power curve. Therefore, Leviton's Intellisense gated AGC will desensitize a receiver to noise signals with only a minimal reduction in command signal sensitivity. The result: Problems from noise interference are dramatically reduced without affecting overall system performance.

It is the responsibility of the specifier/installer to test for signal strength and the presence of noise using Leviton test equipment, Cat. Nos. 6385 (Signal Test Transmitter) and 6386 (Signal Strength Indicator), and to properly apply signal coupling and noise reduction equipment according to the guidelines provided in the Decora® Home Controls (DHC) Technical Manual and the DHC Troubleshooting Guide.

Leviton specifically denies any warranty of performance, stated or implied, where electrical noise interference exists at the time of installation, or subsequent to installation by the addition of noise-producing devices or equipment, or where these components have been installed for non-residential applications. Installation of a Repeater/Coupler is recommended in all DHC systems.

DHC Components are for residential use only. Installation for any other application voids any warranty, stated or implied.



DESCRIPTION

Wallbox Transmitter

The 16400 is a signal transmitter that works in conjunction with DHC receivers. The Wall-Mounted Uni-Base DHC Transmitter is designed to provide manual control of loads from one or more locations in a home over standard 60Hz 120V wiring.

The Uni-Base Transmitter provides a variety of lighting control functions depending on the Uni-Base 16450 plug-in Key Control Pad selected. The 16400 Transmitter Body incorporates Leviton's exclusive Intellisense™ Automatic Gain Control (AGC) circuitry to deliver clearer and stronger line signals without affecting signals simultaneously on the line from other transmitters. The resulting performance reliability exceeds that of any other powerline carrier home automation product line available today.

Key Control Pads

The 16450 Group of Key Control Pads allows users to exercise ON/OFF switching control of lights and appliances as well as full-range dimming of incandescent and magnetic low-voltage lighting. Depending on the Key Control Pad chosen, they also can provide scene-lighting control over multiple incandescent and magnetic low-voltage lighting loads as well as "panic-button" control to turn ALL LIGHTS ON.

FCC COMPLIANCE STATEMENT

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 instructions, may cause harmful interference to radio communications. 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 OFF and ON, 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 the 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.

SPECIFICATIONS

Rating: 120VAC, 60Hz
Max. Controllers on 1 circuit: 4
Power Consumption: 2W

16450 KEYPAD CONFIGURATIONS

16450-1: 1 address, ON/OFF, (1 rocker)
16450-1A: 1 address, ALL ON/ALL OFF, (1 rocker)
16450-2: 2 addresses, ON/OFF, each address in sequence, (2 rockers)
16450-2D: 1 address ON/OFF, same address DIM/BRIGHTEN, (2 rockers)
16450-4: 4 addresses ON/OFF, each address in sequence, (4 rockers)
16450-4A: 3 addresses ON/OFF, each address in sequence, plus ALL ON/OFF control of addresses within the same letter code (4 rockers)
16450-4D: 3 addresses ON/OFF, each address in sequence, plus dimming for each address, (4 rockers)
16450-SD: 3 addresses, Scene ON/Scene OFF, each address in sequence, plus dimming for each scene (4 rockers)
16450-S: 4 addresses, Scene ON/Scene OFF, each address in sequence (4 rockers)

WARNING: The 16450-SD and 16450-S utilizes extended code format. This command structure is not compatible with older versions of the DHC System Coupler/Repeater, Catalog 6201.

NOTE: All keycaps can be removed from the rockers to allow for customized labeling.

NOTE: Cat. No. 16400 Wall Mounted Controller is not intended to replace standard wall switches. The Controller requires one BLACK (Hot) and one WHITE (Neutral) conductor for proper operation and can be used with any one of the Cat. No. 16450 family of keypads. It **CANNOT** be used with any of the 6450 or 6319 family of keypads. Incorrect installation will void warranty.

INSTALLATION INSTRUCTIONS

WARNING: TO BE INSTALLED AND/OR USED IN ACCORDANCE WITH APPROPRIATE ELECTRICAL CODES AND REGULATIONS.

WARNING: IF YOU ARE NOT SURE ABOUT ANY PART OF THESE INSTRUCTIONS, CONSULT A QUALIFIED ELECTRICIAN.

WARNING: TO AVOID FIRE, SHOCK, OR DEATH, TURN OFF POWER AT CIRCUIT BREAKER OR FUSE AND TEST THAT POWER IS OFF BEFORE WIRING!

CAUTION: USE THIS DEVICE ONLY WITH COPPER OR COPPER CLAD WIRE. WITH ALUMINUM WIRE USE ONLY DEVICES MARKED CO/ALR OR CU/AL.

NOTE: SAVE THIS INSTRUCTION SHEET. IT CONTAINS IMPORTANT TECHNICAL DATA ALONG WITH TESTING AND TROUBLESHOOTING INFORMATION WHICH WILL BE USEFUL AFTER INSTALLATION IS COMPLETE.

TO INSTALL:

1. **TURN OFF POWER.**
2. Remove approximately 3/4" (1.9 cm) of insulation from circuit wires (refer to Figure 1).

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3. Connect wires per WIRING DIAGRAM as follows: BLACK (Hot) wire to BLACK lead of device, and WHITE (Neutral) to White lead of device. Twist strands of each lead tightly together and, with circuit conductor push firmly into appropriate wire connector. Screw connector on clockwise making sure that no bare wire shows below the connector. Secure each wire connector with electrical tape.
4. Using a small screwdriver, set the Black Number Code and Red Letter Code dials to the desired address by gently turning the indicators to the proper positions (refer to Figure 2 and the examples in the Testing section).
5. Mount Cat. No. 16400 in wallbox using the screws provided.
NOTE: Ensure that connector is located at the bottom of the device when mounting (refer to Figure 2).
6. Install the desired Cat. No. 16450 keypad on the Controller. Place the keypad tab under the Controller strap. Align the keypad pins with the Controller connector. Press down gently until the keypad is fully seated on the Controller.
CAUTION: DO NOT ATTEMPT TO INSTALL ANY OF THE CAT. NO. 6450 OR 6319 KEYPADS - THEY ARE NOT INTERCHANGEABLE WITH CAT. NO. 16400.
7. Mount wallplate.
8. Restore power at circuit breaker or fuse. **INSTALLATION IS COMPLETE.**

SCENE PROGRAMMING (Cat. Nos. 16450-SD and 16450-S)

1. Using a small tool, depress the programming button on the Cat. No. 16450 face until the RED LED's flash. You are now in the programming mode.
2. At each local dimmer (Cat. No. 6343 or 16383) or switch (Cat. No. 16293), adjust lights to the desired level.
3. At the Cat. No. 16400/16450, assign a button to the desired scene then press the left side of that button to program until the LED stays ON and no longer flashes.
NOTE: To remove a scene, press the right side of the button and the scene will be removed.
4. Repeat steps 2 and 3 to program each additional scene until all of the scenes are set (LED's are all ON and are no longer flashing).
5. Depress the programming button to leave the programming mode and restore normal operation.

TO OPERATE (Cat. Nos. 16450-1, 16450-1A, 16450-2, 16450-2D, 16450-4, 16450-4A and 16450-4D ONLY)

Pressing the left side of the button will transmit ON, ALL ON, or BRIGHT commands, regardless of which keypad is being used. Pressing the right side of the button will transmit OFF, ALL OFF, or DIM commands.

When transmitting an ON/ALL ON command, the LED will blink while the signal is being transmitted and will stay ON when the signal has completed the transmission. When transmitting an OFF/ALL OFF command, the LED will blink while the signal is being transmitted and turn OFF when the signal has completed the transmission. If there is a BRIGHT/DIM function on the keypad, pressing the BRIGHT or DIM button will cause the LED's on the face of the keypad to flash and will remain flashing until the button is released.

TO OPERATE (Cat. Nos. 16450-SD and 16450-S ONLY)

Pressing the left side of the button will transmit SCENE ON or GROUP BRIGHT commands, regardless of which keypad is being used. Pressing the right side of the button will transmit SCENE OFF or GROUP DIM commands.

When transmitting a SCENE ON command, the LED will blink while the signal is being transmitted and will stay ON when the signal has completed the transmission. When transmitting a SCENE OFF command, the LED will blink while the signal is being transmitted and turn OFF when the signal has completed the transmission. If there is a GROUP BRIGHT/GROUP DIM function on the keypad, pressing the BRIGHT or DIM button will cause the LED's on the face of the keypad to flash and will remain flashing until the button is released.

TESTING

Press the keypad rocker(s) to confirm that the load or loads are turned ON and OFF within two seconds of signal transmission. If the Cat. No. 16400 Controller appears to be functioning improperly or operates erratically, read the following paragraphs, then refer to the Perfect Performance Checklist.

When using a multiple-rocker keypad, the top rocker transmits as per the letter/number code set on the Controller. The next rocker down transmits to the same letter, next number address as set on the Controller, and so on.

Examples:

1. A Cat. No. 16450-4 set at A3: top rocker controls the A3 address, the next rocker controls the A4 address, and so on.
2. A Cat. No. 16450-4 set at B15: top rocker controls the B15 address, the next rocker controls the B16 address, the next rocker controls the B1 address, and the last rocker controls the B2 address.

An ALL ON/OFF rocker controls all DHC modules set to the same letter code as on the Cat. No. 16400 Controller. ALL ON only turns ON lighting modules. ALL OFF turns OFF all modules set to the same letter code.

PERFECT PERFORMANCE CHECKLIST

If the Cat. No. 16400 Controller appears to be functioning improperly proceed with the following steps:

1. Confirm that the Controller is wired exactly as shown in the wiring diagram.
2. Confirm that the module is being supplied from a 120V, 60Hz AC source ONLY.
3. Confirm that the load being controlled is in proper working order. Local switch, ON (check for burned-out bulbs, etc.).
4. Confirm that the Controller is powered and is set to transmit commands to the same letter and number code on modules.
5. Confirm that the Cat. No. 16450 keypad is installed properly.
NOTE: If the Controller still does not operate properly after following steps 1-5, proceed with diagnostic steps 6 and 7.
6. Set the Controller to transmit address P1. Using a Cat No. 6386 Signal Strength Indicator plugged in on the same branch circuit as the Controller, confirm that the Controller is transmitting a minimum reading of 2 volts of command signal at the HI-RANGE setting. If the signal strength is less than 2 volts, have the Controller checked.
7. Check for adequate command signal at the Cat. No. 16400 location as follows:
 - A. Plug the Cat. No. 6385 Signal Test Transmitter into a receptacle on the same circuit as the Controller.
 - B. Using the Cat. No. 6386 Signal Strength Indicator at the 16400 location, check the command signal amplitude. Signal strength must be 100mV minimum. If there is less than 100mV of signal present, it may be necessary to couple both legs of the 120/240 Volt power service at the entrance panel using Cat. No. 6299 Signal Bridge.
 - C. If the Yellow ERROR CONDITION indicator is lit, there is electrical "noise" present on the AC line which is interfering with proper module operation. The source of the noise must be identified and either filtered out or eliminated (See Technical Manual).
8. Confirm that you have a recent version of the DHC System Coupler/Repeater. To do this, follow steps 1-3 in the Scene Programming section. If the LED's continue to flash after a scene button is pressed in step 3, you must upgrade your DHC System. A Repeater/Coupler is recommended in all DHC systems for maximum signal.
9. The Leviton Technical Manual covers common DHC problems and system issues in more detail.

Figure 1 - Wire Stripping Diagram

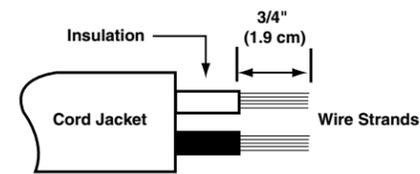
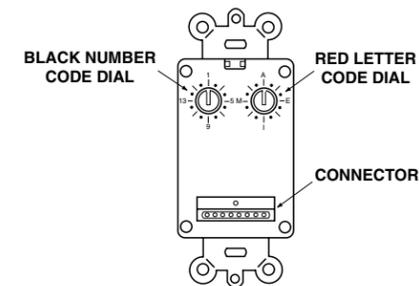


Figure 2 - Indicator Position Diagram



Wiring Diagram

