Square Dual Load Wireless Adaptive Phase Dimmer

Installation Guide

Introduction

The Control4® Square Dual Load Wireless Adaptive Phase Dimmer operates independently or as part of a Control4 home automation system. It installs in a standard square (UK/China style) wall box using typical wiring standards and communicates to the Control4 system using a wireless connection.

IMPORTANT! This device must be installed in a standard square UK/China-style single-gang wall box and use a single-gang EU faceplate. It *cannot* be installed in a round EU-style wall box or in multi-gang boxes.

Box contents

- Square Dual Load Wireless Adaptive Phase Dimmer
- *Square Dual Load Wireless Adaptive Phase Dimmer Installation Guide* (this document)
- M3.5 machine screws (2)
- M4.0 machine screws (2)
- Load-to-neutral jumper wire

Specifications and supported load types

The specifications are described below.

Model number	C4-SDAPD240-N	
Power requirements	230VAC +/-10%, 50/60 Hz This device can function with or without a neutral AC connection depending on load type. Wiring with a neutral is always the preferred wiring method (if possible). See load types and "Sample wiring configurations" below. Refer to the "Warnings and Considerations" section for specific information about device behavior when wired without a neutral.	
Power consumption	600mW	
Load types and ratings		
Supported load types	Incandescent, halogen, electronic (solid state) low-voltage (ELV) transformer, magnetic (iron core, inductive) low-voltage (MLV) transformer[1], phase-dimmable fluorescent, compact fluorescent, and LED.	
Maximum load per output	**Reverse phase**	**Forward phase**
Incandescent (tungsten)	350W	250W[2]
Halogen	350W	250W[2]
Fluorescent[3]	100W	100W
Compact fluorescent (CFL)[3]	100W	N/A
LED[3]	100W	30W
Minimum load (with neutral)		
All load types[1,3]	1W	
Minimum load (without neutral)		
Incandescent (tungsten)	7W	
Halogen[1]	7W	
Fluorescent[1,3]	20W (see note 3 below)	
Compact fluorescent (CFL)[1,3]	20W Varies (see note 3 below)	
LED[1,3]	20W Varies (see note 3 below)	

[1]**Important!** When dimming magnetic (MLV) loads, each transformer must be loaded to at least 50% of its maximum load.

[2]Incandescent and mains-voltage halogens should be dimmed using reverse phase. If forward phase dimming is forced with either of these load types and the dimmer is wired without a neutral, load 2 must be derated to 150W.

[3]The minimum and maximum load requirements for fluorescent, CFL, and LED loads can vary greatly, depending upon the specific fixture and/or bulb being used. The quality and performance of these load types varies greatly from manufacturer to manufacturer. At higher wattages, in-rush current spikes may cause an overcurrent fault on the dimmer. At low wattages, particularly when the dimmer is wired without a neutral, the light may not be able to completely turn off, may flicker, or may cause the dimmer to power starve. Control4 strongly recommends bench testing the actual loads being used in the exact wiring configuration that will be used before performing the installation.

Environmental	
Operational temperature	0˚C - 40˚C (32˚F - 104˚F) All load ratings are based on an ambient temperature of 25˚C (77˚F).
Humidity	5% to 95% non-condensing
Storage	-20˚C - 70˚C (-4˚F - 158˚F)
Miscellaneous	
Control communications	ZigBee, IEEE 802.15.4, 2.4 GHz, 15-channel spread spectrum radio
Wires per connector	One 0.5 mm² - 2.5 mm² OR Two 0.5 mm² - 1.5 mm²
Dimensions	81 × 81 × 30 mm (3.2 × 3.2 × 1.2 in.)
Depth in wall box	25.8 mm (1.0 in)
Weight	0.09 kg (0.2 lb)
Shipping weight	0.136 kg (0.3 lb)

Warnings and considerations

WARNING! Turn OFF electrical power before installing or servicing this product. Improper use or installation can cause SERIOUS INJURY, DEATH or LOSS/DAMAGE OF PROPERTY.

WARNING! This device must be protected by a circuit breaker (20A max).

IMPORTANT! This device must be installed by a licensed electrician in accordance with all national and local electrical codes.

IMPORTANT! Although the dimmer can be operated without a neutral wire connected, we recommend connecting a neutral wire if at all possible for improved performance.

IMPORTANT! Without a neutral wire, Load 2 will appear dimmer and very low wattage loads may flicker when off.

IMPORTANT! When wired without a neutral, Load 1 will be forced into a "switch only" mode. It will not be possible to dim Load 1.

IMPORTANT! When wired without a neutral, the higher wattage of the two loads should be connected to load 2. The only exception to this is if one load is incandescent or halogen and the other is LED. In this case, it may work better to connect the incandescent or halogen load to load 2 even if it is lower wattage than the LED.

IMPORTANT! This device requires a standard square UK/China style wall box. It cannot be installed in a round EU style wall box.

IMPORTANT! Use this device only with copper or copper-clad wire. Do not use aluminum wiring. This product has not been approved for use with aluminum wiring.

IMPORTANT! To reduce the risk of overheating and possible damage to other equipment, do not install to control a receptacle or a motor operated appliance.

IMPORTANT! When dimming magnetic (MLV, iron core, inductive) transformers, each transformer must be loaded to at least 50% of its maximum load.

IMPORTANT! This product generates heat during normal operation.

IMPORTANT! Using this product in a manner other than outlined in this document voids your warranty. Further, Control4 is NOT liable for any damage incurred with the misuse of this product. See "Troubleshooting."

IMPORTANT! Do NOT use a power screwdriver to install this device or to tighten wire screw terminals. If you do, you may overtighten the screws and strip them. Also, overtightening the screws may interfere with proper button operation.

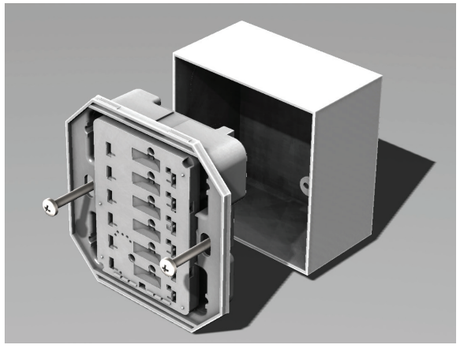
IMPORTANT! This is an electronic device with intricate components. Handle and install with care!

IMPORTANT! Control4 does not guarantee the performance of any bulb or lamp/fixture in your environment. CUSTOMER ASSUMES ALL RISKS, INCLUDING ANY DAMAGE TO CONTROL4 PRODUCTS, ASSOCIATED WITH (i) THE TYPE, LOAD RATING AND QUAILITY OF THE BULB AND LAMP/FIXTURE, OR (ii) ANY USE OR INSTALLATION NOT IN ACCORDANCE WITH THE DOCUMENTATION FURNISHED BY CONTROL4, EITHER WITH THE CONTROL4 PRODUCT OR AT WWW.CONTROL4.COM.

Installing the dimmer

1. Ensure that the location and intended use meet the following criteria:
   - Do not exceed the load capacity requirements of the dimmer. Refer to the load ratings in the specifications above for details.
   - Install in accordance with all national and local electrical codes.
   - The range and performance of the wireless control system is highly dependent on the following: (1) distance between devices; (2) layout of the home; (3) walls separating devices; and (4) electrical equipment located near devices.
2. Turn off the mains electrical power at the consumer unit. To ensure the wires do NOT have power running to them, use an inductive voltage detector.
3. Prepare each wire. Wire insulation should be stripped back 7 mm from the wire end.
4. Identify your wiring application, and then see the appropriate wiring diagram in the "Sample wiring configurations" section below.
5. Connect the dimmer to the wall box wires as shown in the applicable wiring diagram. Tighten screw terminals to 4 kg-cm.
6. Fit the wires into the wall box.
7. Align the dimmer to the wall box as shown in Figure 1 (note the **UP** orientation arrow on the dimmer), then fasten the dimmer to the wall box using the included M3.5 machine screws (UK-style wall box) or M4.0 machine screws (China-style wall box).

Figure 1: Square wall box installation



IMPORTANT! Tighten the screws until the device is flush with the wall surface, but no further. Overtightening can warp the dimmer and cause it to malfunction.

8. Attach the buttons (sold separately) as described in the *Keypad Button Installation Guide*.
9. Install the Control4 Faceplate (sold separately) by placing the top of the faceplate on the device (note the **UP** orientation arrow on the inside of the faceplate) and firmly pressing the bottom until the faceplate snaps into place against the wall.

   Note: To remove the faceplate, use a flathead screwdriver. Insert the screwdriver into the small gap on the bottom between the faceplate and the device, then twist the screwdriver blade to pop the faceplate off.
10. Turn ON mains electrical power at the consumer unit.

Operating the dimmer

On initial power up, all status LEDs on the dimmer will illuminate green, indicating that the device has power. To set up this dimmer for use with a Control4 system, refer to the *Composer Pro User Guide* (ctrl4.co/cpro-ug).

Before configuring in Composer Pro or Composer Express:

- Clicking any button in the top half of the keypad will toggle load 1 on and off. Press and hold the button to ramp the light up or down.
- Clicking any button in the bottom half of the keypad will toggle load 2 on and off. Press and hold the button to ramp the light up or down.

Button tap sequences

The button tap sequences are defined in the table below. Button tap sequences that require a single button should use the top-most button installed on the dimmer. Button tap sequences requiring two buttons should use the top-most and bottom-most (or bottom-left) buttons installed on the dimmer.

Function	Button tap sequence
Identify	4
ZigBee channel	7
Reboot	15
Factory reset	9-4-9
Leave mesh and reset	13-4-13

Troubleshooting

If the light does not turn on:

- Ensure that at least one LED on the face of the dimmer is lit.
- Ensure that the light bulb is not burned out and is screwed in tightly.
- Ensure that the circuit breaker is not turned OFF or tripped.
- Check for proper wiring (see "Sample wiring configurations").
- For help on the installation or operation of this product, email or call the Control4 Technical Support Center. Please provide your exact model number. Contact support@control4.com or see the web site **www.control4.com**.

Care and cleaning

- Do NOT paint the dimmer or its wall plate.
- Do NOT use any chemical cleaners to clean the dimmer.
- Clean surface of the dimmer with a soft damp cloth as needed.

Additional resources

The following resources are available for additional support:

- Control4 Knowledgebase and forums
- Control4 Technical Support
- Control4 website: **www.control4.com**
- Composer documentation available at **ctrl4.co/docs**.

For the latest version of this document, open this URL or scan the QR code on a device that can view PDFs.

MOST RECENT VERSION

ctrl4.co/sdapd240-ig

Regulatory/Safety information

To review Regulatory information for your particular Control4 products, see the information located on the Control4 website at **ctrl4.co/reg**.

Patent information

Applicable patents are available at **ctrl4.co/patents**.

Warranty

Visit **ctrl4.co/warranty** for details.

Sample wiring configurations

Figure 2: Single device location, with neutral connection (recommended)

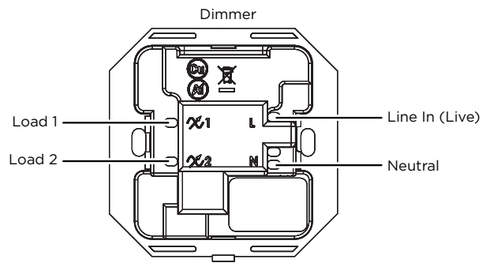
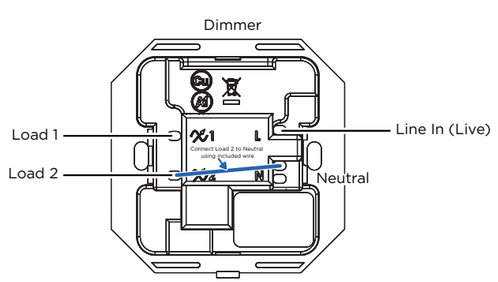


Figure 3: Single device location, without neutral connection



IMPORTANT! When wiring without a neutral, always connect the higher wattage load to **Load 2**. If connecting only a single load, that load must be connected to **Load 2**, not **Load 1**. Refer to the "Warnings and considerations" section of this installation guide for additional information on wiring without a neutral.

Figure 4: Multiple device locations using Configurable Keypad, neutral connection at dimmer

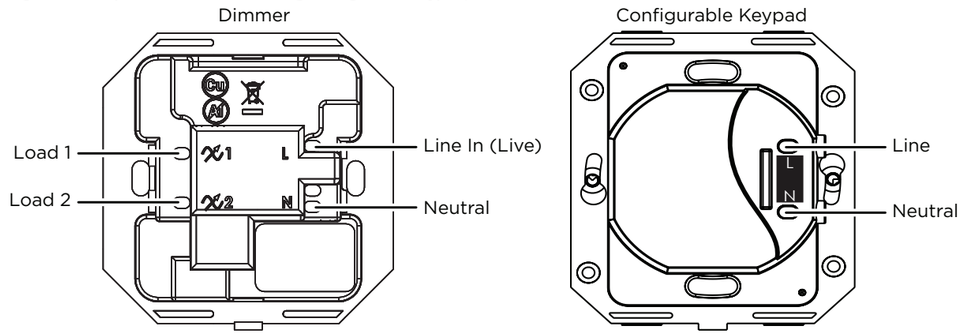
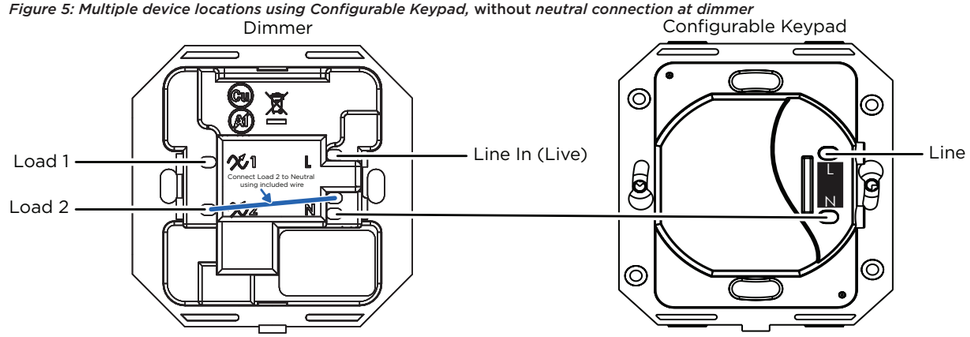


Figure 5: Multiple device locations using Configurable Keypad,* without *neutral connection at dimmer



IMPORTANT! When wiring without a neutral, always connect the higher wattage load to **Load 2**. If connecting only a single load, that load must be connected to **Load 2**, not **Load 1**.

Note: For additional details on multi-way wiring, refer to the *Wiring Guide for EU Two-way Switching* document (**ctrl4.co/2waywiring**).

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