



# 8-Channel 0-10V Dimmer Installation Guide

## Supported Model

- C4-DIN-8TV-E 8-Channel 0-10V Dimmer

## Introduction

The Control4® 8-Channel 0-10V Dimmer controls up to eight (8) 0-10V dimmable fluorescent ballasts or LEDs from one (1) module in the Control4 system. Each channel can sink up to 100mA or source up to 25mA. Individual 0-10V lights can be programmatically tied to a corresponding channel on a Control4 8-Channel Relay Module for on/off control of the ballast or LED when needed. Alternatively, the 8-Channel 0-10V Dimmer also has eight (8) low-voltage outputs for triggering external power relays.

The dimmer installs in a panelized backbox using typical wiring standards and communicates to the Control4 system using a CAT5 Ethernet connection.

## Box Contents

- 8-Channel 0-10V Dimmer
- Warranty Card
- 8-Channel 0-10V Dimmer Installation Guide (this document)
- 8-Channel 0-10V Dimmer Wiring Guide

## Specifications and Supported Fixtures

The specifications are described below.

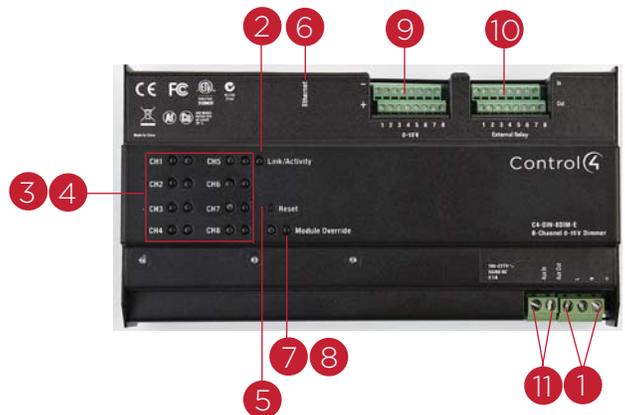
Model Number	C4-DIN-8TV-E
Power Requirements	100-277VAC, 50/60 Hz
0-10V Per Channel Max	100mA sink (approximately 50 ballasts - see ballast specifications)  25mA source (approximately 12 ballasts - see ballast specifications)
External Relay Channel Rating	24V max, 50mA max
Power Consumption	2.5W
Supported Load Types	0-10V and 1-10V dimmable fluorescent ballasts and LEDs, sink or source.
Control Communications	Ethernet
Connectors	
Five (5) Line Voltage Screw Terminals (Line, Neutral, Ground, Aux In, Aux Out)	26AWG to 12AWG (.12mm <sup>2</sup> to 4mm <sup>2</sup> )
Sixteen (16) 0-10V Screw Terminals (8+, 8-)	26AWG to 16AWG (.12 mm <sup>2</sup> to 1.5mm <sup>2</sup> )
Sixteen (16) External Relay Screw Terminals (8 in, 8 out)	26AWG to 16AWG (.12 mm <sup>2</sup> to 1.5mm <sup>2</sup> )
One (1) Ethernet	RJ-45

Environmental	
Operational Temperature	32° F - 104° F (0° C - 40° C)
Humidity	5% - 95% Non-condensing
Storage Temperature	-4° F - 158° F (-20° C - 70° C)
Dimensions	
H x W x D	8.5" x 4.3" x 2.3" (215 mm x 109 mm x 57 mm)
DIN Module Width	12M
Weight	2.4 lb (1.1 kg)
Shipping Weight	2.90 lb (1.3 kg)

## Warnings and Considerations

- WARNING!** Turn OFF electrical power to all circuit breakers feeding into the panel before installing or servicing this product. Improper use or installation can cause SERIOUS INJURY, DEATH or LOSS/DAMAGE OF PROPERTY.
- ATTENTION!** Coupez le courant électrique pour tous les disjoncteurs d'alimentation dans le panneau avant d'installer ou de réparer ce produit. Une mauvaise utilisation ou installation peut entraîner des blessures graves, décès ou perte / dommages à la propriété.
- WARNING!** This device must be protected by a circuit breaker (20A max).
- ATTENTION!** Cet appareil doit être protégé par un disjoncteur (20A max.)
- IMPORTANT!** The panel used with this device is air cooled. Install the panel in a location where the vented cover is not blocked. At least 12 inches (30cm) clearance is required away from the front of the panel. Some local codes may require as much as 36 inches clearance.
- IMPORTANT!** Only install this device indoors.
- 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!** Changes or modifications not expressly approved by Control4 could void the user's authority to operate the equipment.
- IMPORTANT!** This device must be installed by a licensed electrician in accordance with all national and local electrical codes.

Figure 1. Front View



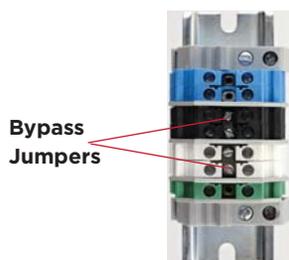
- 1 Line Voltage Input Terminals
- 2 Link/Activity LED
- 3 Channel Status LEDs
- 4 Channel Buttons
- 5 Reset Button (recessed)
- 6 Ethernet RJ-45 Port
- 7 Module Status LED
- 8 Module Override Button
- 9 0-10V Terminals (+/-)
- 10 External Relay Terminals (in/out)
- 11 Auxiliary Override Terminals

## Pre-Installation Instructions

### Before You Install in a Control4 Panel

- 1 Determine whether on/off control of each 0-10V load is required in addition to the 0-10V control. If it is, determine whether a corresponding channel on a Control4 8-Channel Relay Module will be used, or whether an external power relay (such as a Leviton Power Pack Relay) will be used.
- 2 Use Composer Pro to add the 8-Channel 0-10V Dimmer to a project, define its location in a panel, and print the Panel, Module, and/or Load Schedule Reports. See the *Composer Pro User Guide* for details.
- 3 Install the panel following the instructions in the *5-Slot and 2-Slot Panel Installation Guide*.
- 4 Turn OFF the circuit breakers for all lines coming into the panel.
- 5 Install the Terminal Block for the 0-10V Dimmer (C4-DIN-TB-PO) following the instructions in the *Terminal Block Installation Guide* and in the location defined by the Composer Pro Panel Reports. The 0-10V Terminal Block should be installed in the lower half of the specified Terminal Block slot area.
- 6 Verify that all bypass jumpers are securely installed in the Terminal Block assemblies. Each 8-Channel 0-10V Dimmer Terminal Block assembly should have two (2) bypass jumpers installed, connecting the two (2) black terminals together and connecting the two (2) white terminals together. Both bypass jumpers should be left in place even after the module installation..

Figure 2. Terminal Block Bypass Jumpers



- 7 Turn on the circuit breaker feeding the Terminal Block. Verify that the circuit breaker does not trip. If a breaker trips, do not proceed with installation until the problem has been resolved. Turn off the circuit breaker again before proceeding with the installation and wiring.

### Before You Install in a Third-Party DIN Rail Panel

- 1 Determine whether on/off control of each 0-10V load is required in addition to the 0-10V control. If it is, determine whether a corresponding channel on a Control4 8-Channel Relay Module will be used or whether an external power relay (such as a Leviton Power Pack Relay) will be used.
- 2 Install the third-party panel according to the third-party instructions.
- 3 Install the panel in a well-ventilated area.

**IMPORTANT!** Test all wiring for short circuits before installing the module. Damage to the module caused by miswiring is not covered by the Control4 warranty.

## Installation Instructions

### Install in a Control4 Panel

- 1 The 8-Channel 0-10V Dimmer should be installed in the panel next to the previously-installed 8-Channel 0-10V Dimmer Terminal Block. The location of the device in the panel is defined by the Composer Pro Panel Report.
- 2 With the green Line Input screw terminals on the left side of the 8-Channel 0-10V Dimmer, hold the dimmer upright and angle it to the right so that the right side of the module fits onto the rail in the panel.



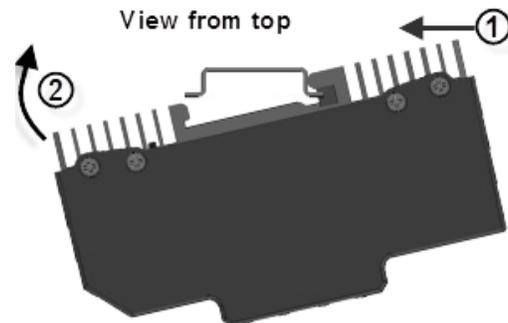
**NOTE:** The 0-10V Dimmer installs with the Line Input Connector on the left side and the Ethernet port and 0-10V connectors on the right side.

- 3 With the right side already in place, push forward on the left side of the 8-Channel 0-10V Dimmer to snap it onto the rail (see Figure 3).



**NOTE:** To remove the module, push the module toward the left side, pull out from the left side, and remove it from the right side of the rail.

Figure 3. Snap on the 0-10V Dimmer - Control4 Panels



- 4 Wire the module according to the wiring diagrams in the *8-Channel 0-10V Dimmer Wiring Guide* and the reports from Composer Pro.
  - a. On the left side of the module, connect the line, neutral, earth ground, and auxiliary override in/out between the Terminal Block and the module. Wiring between the Terminal Blocks and the module will be easiest when stranded wire is used.
    - At the Terminal Block side, strip the wires 0.35 in. (9 mm) and tighten to 7 lb-in. (0.8Nm).
    - At the module side, strip the wires 0.3 in. (7 mm) and tighten to 5.3 lb-in. (0.6Nm).
  - b. On the right side of the module, connect the 0-10V +/- wires for each load as defined in the Composer Pro report.
    - Strip the wires 0.2 in. (5mm) and tighten to 2.1 lb-in (0.24Nm).
  - c. If using external relays for on/off control, connect the +DC from the power pack relay to the external relay "In" terminal on the module and the control line from the power pack relay to the external relay "Out" terminal on the module.
    - Strip the wires 0.2 in. (5mm) and tighten to 2.1 lb-in (0.24Nm).

- 5 On the right side of the 8-Channel 0-10V Dimmer, connect the Ethernet CAT5 cable to the RJ-45 port.
- 6 Install the other modules in the panel as defined in the Panel Reports from Composer Pro and their respective installation guide.
- 7 Turn the circuit breakers back ON and test all connected loads by clicking the channel override buttons. If the 0-10V load is connected to a Control4 8-Channel Relay for on/off control, the corresponding channel button on the 8-Channel Relay will need to be clicked on for the load to turn on.

## Install in a Third-Party Panel

- 1 With the green Line Input screw terminals underneath the 0-10V Dimmer, hold the 8-Channel 0-10V Dimmer lengthwise and angle it up so that the top side of the module fits onto the rail.



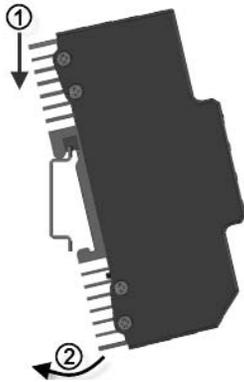
**NOTE:** The 8-Channel 0-10V Dimmer installs with the Line Input Connectors on the bottom and the Ethernet port and 0-10V connectors on the top.

- 2 With the top side already in place, rotate the 8-Channel 0-10V Dimmer down to snap it onto the rail (see Figure 4).



**NOTE:** To remove the module, pull the module out from the bottom, rotate the module up, and lift it off.

Figure 4. Snap on the 8-Channel 0-10V Dimmer - Third-Party Panels



- 3 Wire the module according to the wiring diagrams in the *8-Channel 0-10V Dimmer Wiring Guide* and the reports from Composer Pro.
  - a. On the bottom side of the module, connect the line, neutral, earth ground, and auxiliary override in/out.
    - Strip the wires 0.3 in. (7 mm) and tighten to 5.3 lb-in (0.6Nm).
  - b. On the top side of the module, connect the 0-10V +/- wires for each load as defined in the Composer Pro report.
    - Strip the wires 0.2 in. (5mm) and tighten to 2.1 lb-in (0.24Nm).
  - c. If using external relays for on/off control, connect the +DC from the power pack relay to the external relay "In" terminal on the module and the control line from the power pack relay to the external relay "Out" terminal on the module.
    - Strip the wires 0.2 in. (5mm) and tighten to 2.1 lb-in (0.24Nm).
- 4 On the top of the 8-Channel 0-10V Dimmer, connect the Ethernet CAT5 cable to the RJ-45 port.
- 5 Install the other modules as defined in the reports from Composer Pro and their respective installation guide.
- 6 Turn the circuit breakers back ON and test all connected loads by clicking the channel override buttons. If the 0-10V load is connected to a Control4 8-Channel Relay for on/off control, the corresponding channel button on the 8-Channel Relay will need to be clicked on for the load to turn on.

## Wiring Diagrams

The wiring diagrams show the wiring details for Control4 0-10V Dimmers. Refer to the *8-Channel 0-10V Dimmer Wiring Guide* to view those diagrams.

## Operation and Configuration

### Composer Pro Configuration and Reports

Use Composer Pro to define the properties of each 8-Channel 0-10V Dimmer, its location in a panel, and the loads that are connected to it. Composer Pro can then be used to generate Panel Reports, Module Reports, and Load Schedule Reports. These reports are essential to ensuring that each 8-Channel Dimmer is properly installed in the correct location and wired to the appropriate loads. Please refer to the *Composer Pro User Guide* for detailed information.

### Browser Configuration Tool

Basic properties as well as the network configuration for the 8-Channel 0-10V Dimmer can be set using a standard web browser. To open the configuration page, simply start the browser and type in the IP address of the dimmer.

The browser configuration tool can be used to set the following properties:

- Network Settings
  - DHCP Enable/Disable
  - IP Address
  - Subnet Mask
  - IP Gateway
- Control Settings for each Channel
  - Click Ramp Rate Up/Down
  - Hold Ramp Rate Up/Down
  - Preset Level
  - Module Override Level

### LEDs

The indicator lights on the front of the 8-Channel 0-10V Dimmer communicate the status of the device.

Indicator	LED Color	Status	Notes
Module Override	Blue	Power on, normal operation	
	Black	Off	
Channels	Blue	Load on	
	Black	Load off	
Link/Activity	Green	Link	
	Flashing Green	Firmware updating	Flashing gets faster as update proceeds
	Orange	Activity	

### Channel and Module Override Buttons

During normal operation, the buttons on the front of the 8-Channel 0-10V Dimmer behave in the following manner:

Button	Action	Result
CH1-CH8	Click	Toggles the load on and off.
	Hold	Ramps/fades the load.
Module Override	Click	Toggles between the module override scene and all channels off.
	Hold for five (5) seconds	Sets the module override scene to current channel levels. The Module Override LED will blink rapidly to indicate that the override scene has been saved.



**NOTE:** If a 0-10V light is connected to a channel on a Control4 Relay Module for on/off control, that channel on the relay module will need to be manually turned on/off when using the channel or module override buttons on the 0-10V module if the control system or network is not operational.

The following button tap sequences are available using the CH1 and CH8 buttons.

Function	CH1	CH8	CH1
Identify	4		
Reboot Device	15		
Factory Reset	9	4	9

## Reset Button



**NOTE:** The Reset button is recessed and must be pressed using a paperclip or similar device.

A single click of the Reset button is equivalent to powering the 8-Channel 0-10V Dimmer off and back on. Additionally, certain special activities can be accomplished by pressing and holding a specific button while clicking the Reset button. Note that the same activity is possible by pressing and holding the designated button while power cycling the 8-Channel 0-10V Dimmer:

Hold Button While Clicking Reset	Result
CH7	Sets the device to DHCP-disabled and forces the IP address to 192.168.1.200.
CH8	Toggles between DHCP-enabled and DHCP-disabled.
Module Override	Restores the factory image (do not perform unless directed to do so by Control4 Technical Support).

## Manual Overrides

Prior to installation of the control system, or in case a problem occurs with the control system or the network, it is possible to control the loads attached to the 8-Channel 0-10V Dimmer via several methods:

- **Override Scene**
  - The module override scene is stored in the module itself and does not require interaction from the control system.
  - The default setting for this override scene is all loads on at 100%. The override scene settings can be changed using the buttons on the front of the module (see the "Channel and Module Overrides" section above), the Browser Configuration Tool, or Composer Pro.
- **Module Override Button**
  - Clicking the Module Override button toggles the attached loads between the stored override scene and all loads off.
- **Auxiliary Override Contacts**
  - The Aux In and Aux Out terminals on the 8-Channel 0-10V Dimmer can be wired to a standard line-voltage toggle switch installed in a hidden but convenient location, such as a closet.
  - Each time the attached switch is flipped, the 8-Channel 0-10V Dimmer will toggle between the stored override scene and all loads off.
  - If desired, a single toggle switch can be wired to the Aux In contact on multiple Control4 Panelized Lighting modules, but all modules sharing an auxiliary override switch **MUST BE ON THE SAME ELECTRICAL PHASE**.
- **Channel Override Buttons**
  - The channel override buttons on the front of the module provide individual control of each load attached to the 8-Channel 0-10V Dimmer. Click the specific Channel Override button to toggle the load between its preset level and off. Press and hold the specific Channel Override button to ramp/fade the load (if dimmable).



**NOTE:** If a 0-10V light is connected to a channel on a Control4 Relay Module for on/off control, that channel on the relay module will need to be manually turned on/off when using the channel or module override buttons on the 0-10V module if the control system or network is not operational.

## Troubleshooting

Symptom	Possible Solution
Module does not power on	Verify that the circuit breaker is on.
	Verify that the Line-In is connected to the power.
Load does not turn on	Verify that the load is wired to the proper channel terminal.
	Verify that the light bulb is not burned out.
Loads do not turn off	Verify that the load is receiving power, either continuously or through a relay. Note that the 0-10V input is only a control signal.
	Many 0-10V loads require separate on/off control. Verify that this control is being provided either by a Control4 Relay Module or by an external relay connected to the Control4 0-10V Dimmer.

## Regulatory/Safety Information

To review Regulatory information for your particular Control4 products, see the information located on the Control4 website at: <http://www.control4.com/regulatory/>.

## Warranty

For complete warranty information, including details on consumer legal rights as well as warranty exclusions, review the Warranty card or visit [www.control4.com/warranty](http://www.control4.com/warranty).

## About this Document

Part Number: 200-00301 Rev. A 4/01/2013