LUTRON

0-10V Dimming using HomeWorks QS Specification Grade Panels

1.0 Overview

There are a variety of dimming controls in the HomeWorks QS product family that are capable of dimming 0-10V lighting loads. Specification Grade Panel dimming cards are capable of dimming 0-10V lighting loads through either the GRX-TVI interface or GRX-TVM2 modules. The following application note describes how to utilize the Specification Grade dimming cards for 0-10V dimming using the HomeWorks QS software.

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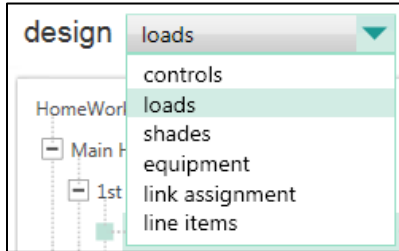## 2.0 Specification Grade Panels with GRX-TVM2 Modules

2.1 Wiring

The terminal block below represents one of the terminal blocks from a Specification Grade Panel. Each dimming card will wire to their own set of terminal blocks. For proper operation, be sure to connect the Hot connection of the 0-10V driver to the Dimmed Hot (DH) terminal block connection for the dimming card.
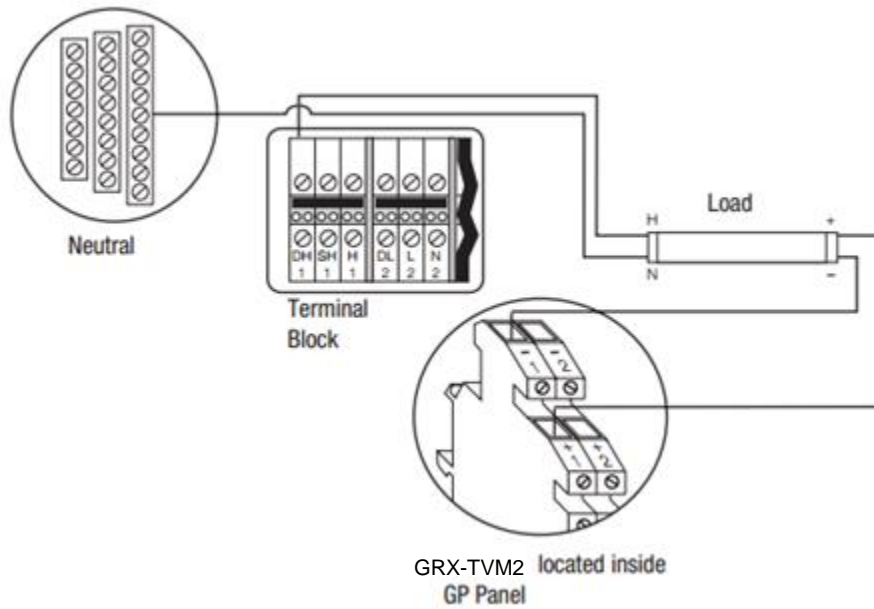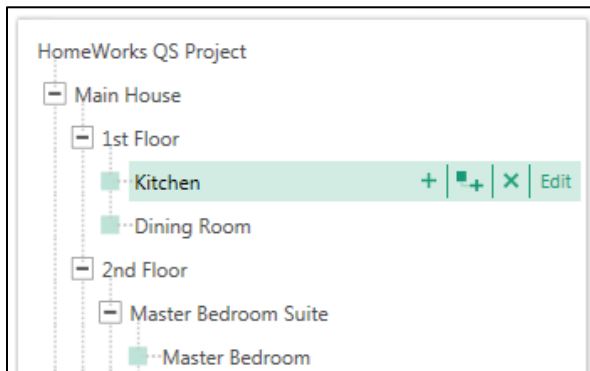
2.2 Database Design

2.2.1 Load Schedule
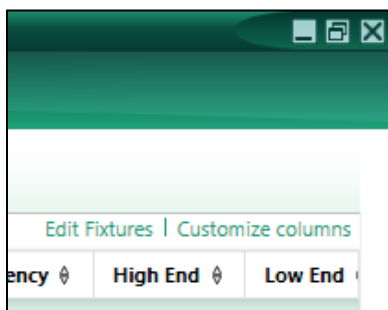
To begin building the load schedule, go to the *Design* tab menu and select *Loads*.

Upon selecting the option for the Load design screen, select an area that will contain the 0-10V loads by clicking on that area name in the tree to the left. The selected area will be highlighted green.


In the upper-right corner of the software window, click on *Edit Fixtures*.

The *System Fixtures* configuration window will appear which allows you to create fixture placeholders for easy placement into the Load Schedule. On the Custom tab, create a fixture placeholder for the 0-10V loads that will be controlled via a TVM2 module, driven by the output of a Specification Grade Panel. There are two options for 0-10V loads, LED or Fluorescent. Select the appropriate one for the application.

For best practice, give the fixture a name that will remind all involved that the load is tied to the TVM2 modules controlled by the Specification Grade Panel outputs.

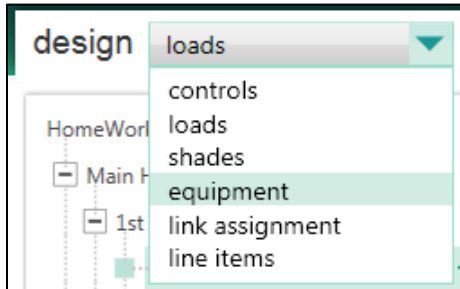**IMPORTANT:** The lamp wattage must be entered in as **0W** when using the TVM2.
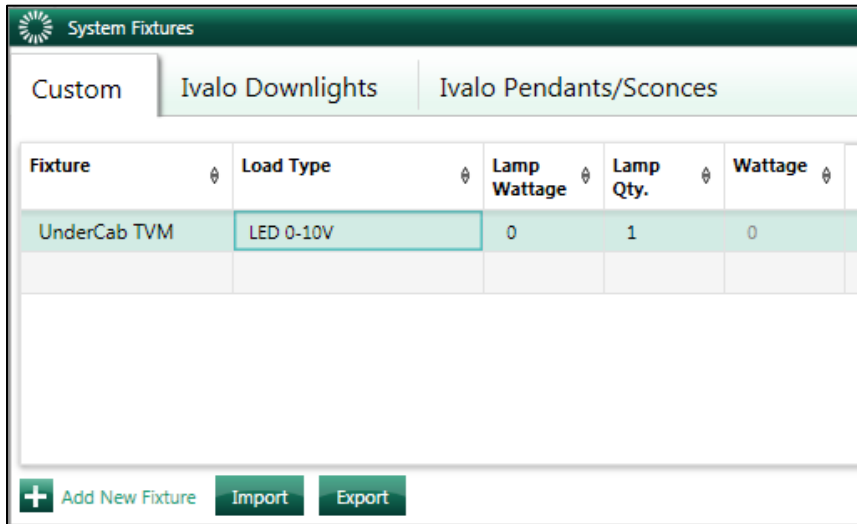
Click on Done to close the System Fixtures window and return to the Load Schedule for the selected area. Double-click in the Fixture field to reveal a drop-down menu with all currently created custom or Ivalo fixture options within the project. Select the 0-10V placeholder and the software will add a load schedule line item in the selected area for the 0-10V loads in that space.
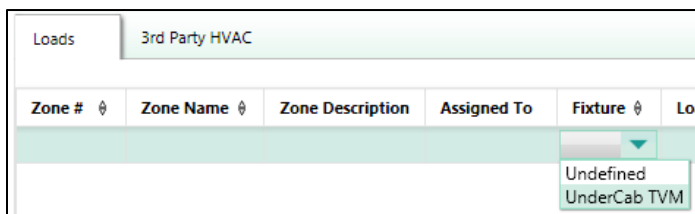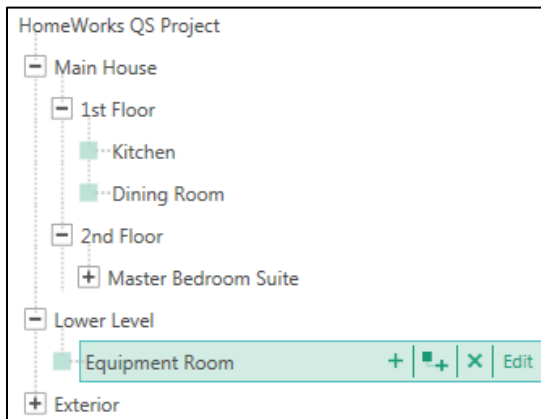

Provide a zone name, zone description, and any other pertinent field. Repeat this process for each 0-10V load that is to be controlled through a Specification Grade Panel output driving a TVM2.

2.2.2 Adding Equipment

The next step would be to add the equipment that the 0-10V loads will be assigned to. In this case, the equipment being added would be the Specification Grade Dimming Panel. To add the panel to the database, go to the *Design* tab drop down menu and select the option for *Equipment*.
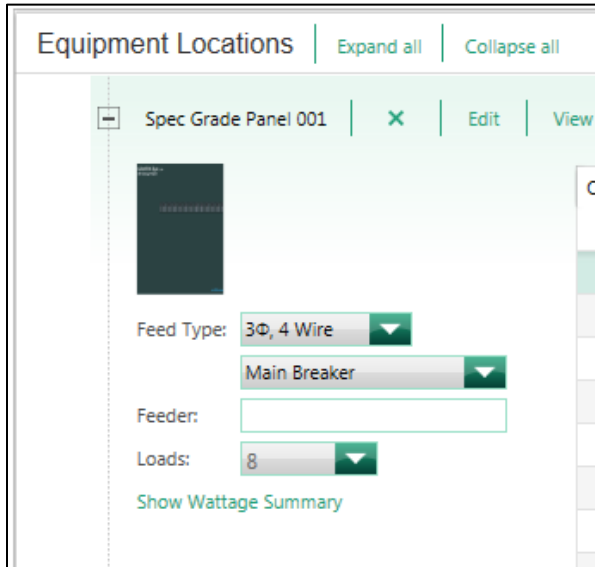

Click to select the area in which the dimming panel is to be physically located using the area tree on the left side of the screen.

Use the Equipment toolbox to add a Specification Grade Dimming Panel to the area. If the dimming panel is not currently available in the toolbox, go to Edit Toolbox and add the dimming panel to the toolbox.

Configure the Specification Grade Dimming Panel in the software to match the needs of the application. A single panel can be configured to have a maximum of 144 zones. The physical size of the panel will vary based on the number of zones. The number of Specification Grade Panel Interfaces (SPIs), which link the dimming cards to the Processor, will also vary based on the zone count. A total of 6 SPIs would be required for the maximum panel size of 144 zones.


2.2.3   Assigning the 0-10V Loads to the Panel

While in the **Design > Equipment** section of the programming software, to the right of the Specification Grade Panel image and parameters, there will be **Assign** hyperlinks which will show the Assign window when clicked. Click on the Assign link for one of the zones which control a 0-10V load through a TVM2 module.
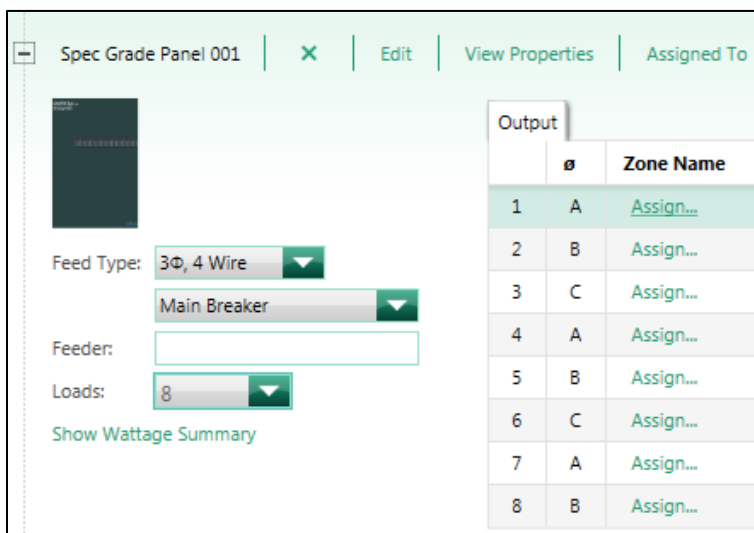
Find the zone to assign within the Assign window and click on the Assign link for that zone.
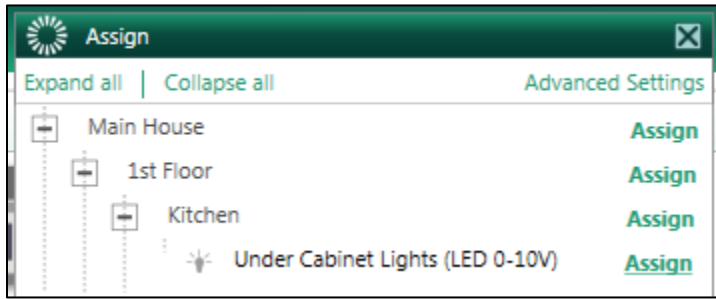

The zone will now be assigned to the selected output on the panel.

	ø	Zone Name	Zone Description	Load #	Load Type	Voltage	Total Wattage
1	A	… ▸ …der Cabinet Lights	Counter Accent	… ▸ Under Cabinet Lights ▸ 1	LED 0-10V	120V	0
2	B	Assign…					
3	C	Assign…					

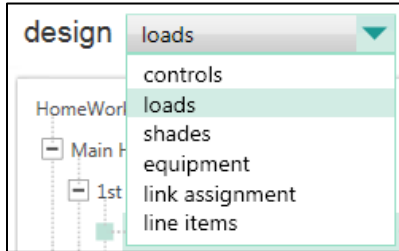## 3.0 Specification grade Panels with GRX-TVI Interfaces

3.1 Installation

The wiring diagram below represents one of the terminal blocks from a Specification Grade Panel connecting to the input of a GRX-TVI. For proper operation, be sure to connect the DL2/DH2 dimmed hot connection on the TVI connects with the Dimmed Hot (DH) terminal block connection of the dimming card.
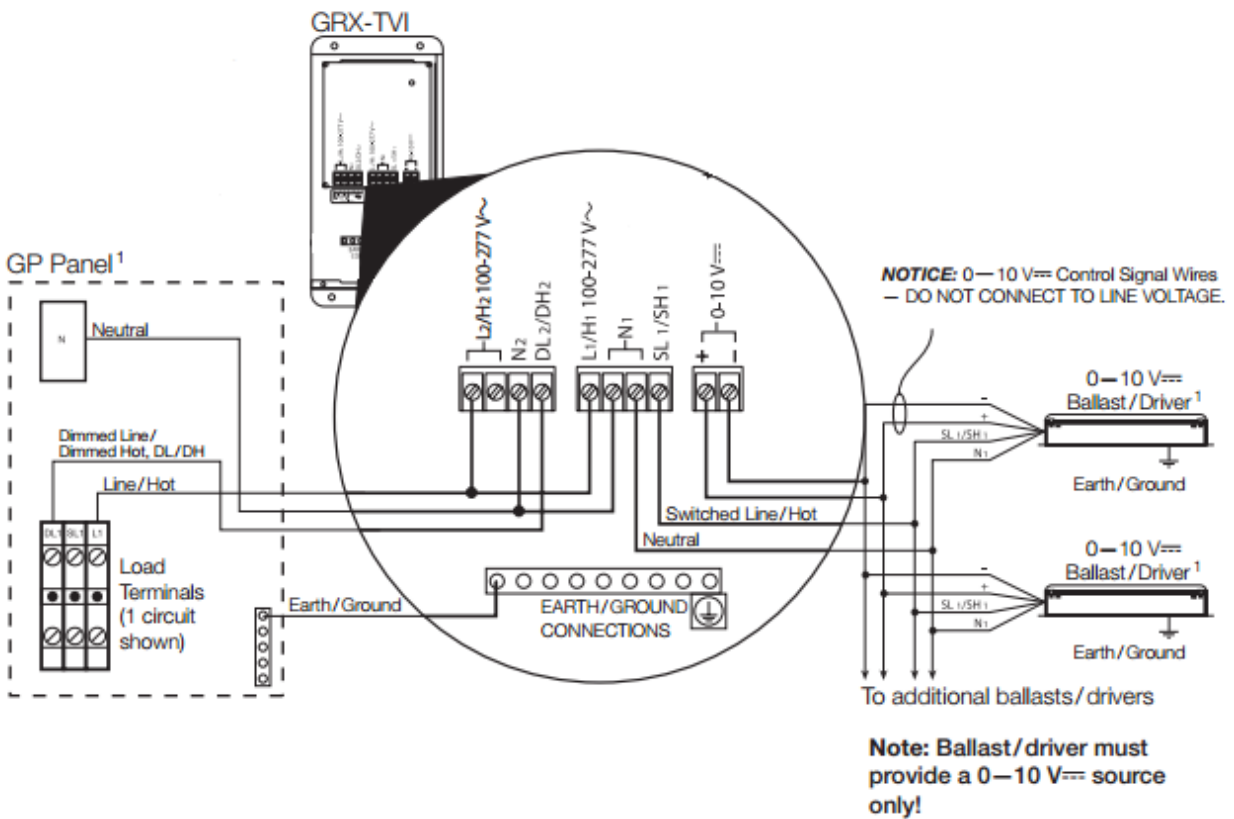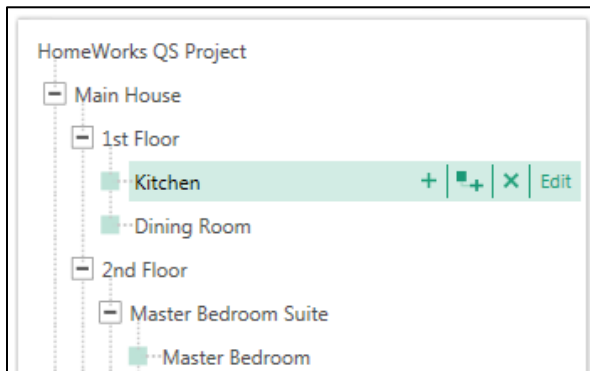
3.2 Database Design
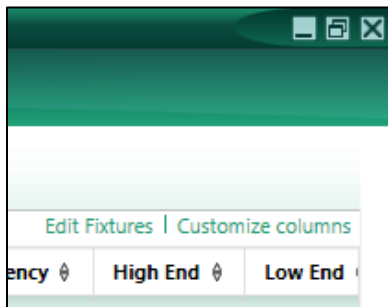
3.2.1 Load Schedule

To begin building the load schedule, go to the **Design** tab menu and select **Loads**.

Upon selecting the option for the Load design screen, select an area that will contain the 0-10V loads by clicking on that area name in the tree to the left. The selected area will be highlighted green.

In the upper-right corner of the software window, click on **Edit Fixtures**.

The **System Fixtures** configuration window will appear which allows you to create fixture placeholders for easy placement into the Load Schedule. On the Custom tab, create a fixture placeholder for the 0-10V loads that will be controlled via a GRX-TVI interface, driven by the output of a Specification Grade Panel. There are two options for 0-10V loads, LED or Fluorescent. Select the appropriate one for the application.

For best practice, provide the fixture a name that will remind all involved that the load is tied to the TVI interfaces controlled by the Specification Grade Panel outputs.

IMPORTANT: The lamp wattage must be entered in as **10W or greater** when using the TVI.
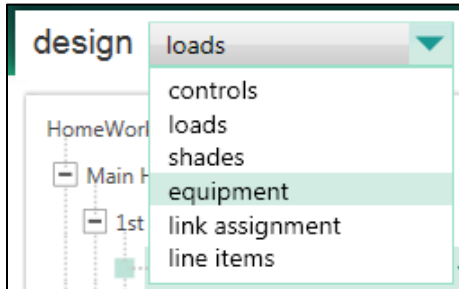

Click on Done to close the System Fixtures window and return to the Load Schedule for the selected area. Double-click in the Fixture field to reveal a drop-down menu with all currently created custom or Ivalo fixture options within the project. Select the 0-10V placeholder and the software will add a load schedule line item in the selected area for the 0-10V loads in that space.
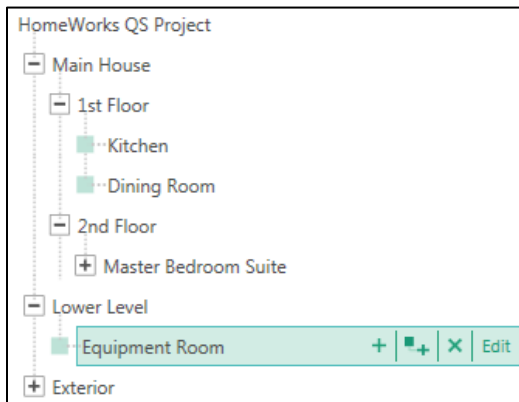

Provide a zone name, zone description, and any other pertinent field. Repeat this process for each 0-10V load that is to be controlled through a Specification Grade Panel output driving a TVI.

3.2.2 Adding Equipment

The next step would be to add the equipment that the 0-10V loads will be assigned to. In this case, the equipment being added would be the Specification Grade Dimming Panel. To add the panel to the database, go to the *Design* tab drop down menu and select the option for *Equipment*.
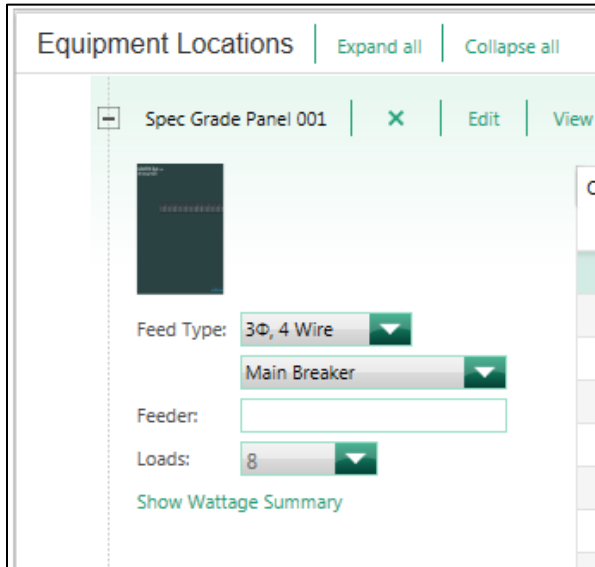

Click to select the area in which the dimming panel is to be physically located using the area tree on the left side of the screen.

Use the Equipment toolbox to add a Specification Grade Dimming Panel to the area. If the dimming panel is not currently available in the toolbox, go to Edit Toolbox and add the dimming panel to the toolbox.

Configure the Specification Grade Dimming Panel in the software to match the needs of the application. A single panel can be configured to have a maximum of 144 zones. The physical size of the panel will vary based on the number of zones. The number of Specification Grade Panel Interfaces (SPIs), which link the dimming cards to the Processor, will also vary based on the zone count. A total of 6 SPIs would be required for the maximum panel size of 144 zones.

3.2.3 Assigning the 0-10V Loads to the Panel

Remaining in the **Design > Equipment** section of the programming software, to the right of the Specification Grade Panel image and parameters, there will be **Assign** hyperlinks which will show the Assign window when clicked. Click on the Assign link for one of the zones which control a 0-10V load through a TVI Interface.
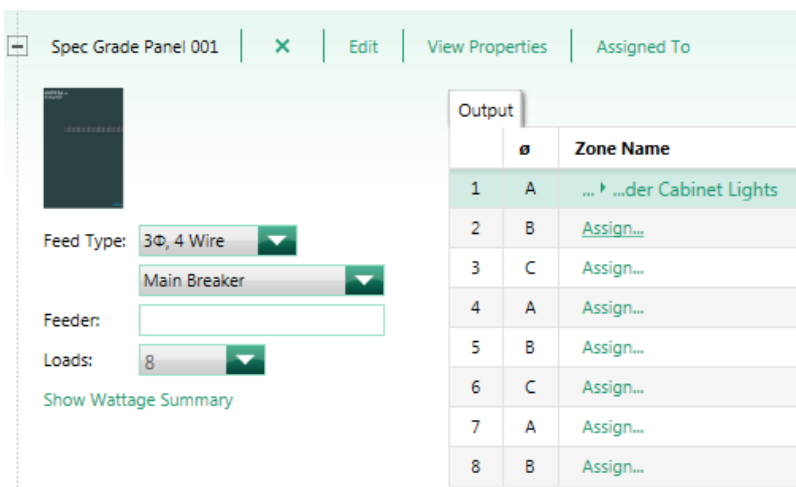
Find the zone to assign within the Assign window and click on the Assign link for that zone.

The zone will now be assigned to the selected output on the panel. A TVI should appear in the *Interface* field.

	ø	Zone Name	Load #	Load Type	Total Wattage	Interface	Interface Qty
1	A	... ▸ ...der Cabinet Lights	... ▸ Under Cabinet Lights ▸ 1	LED 0-10V	0		
2	B	... ▸ Cove LEDs	... ▸ Cove LEDs ▸ 1	LED 0-10V	48	GRX-TVI	1