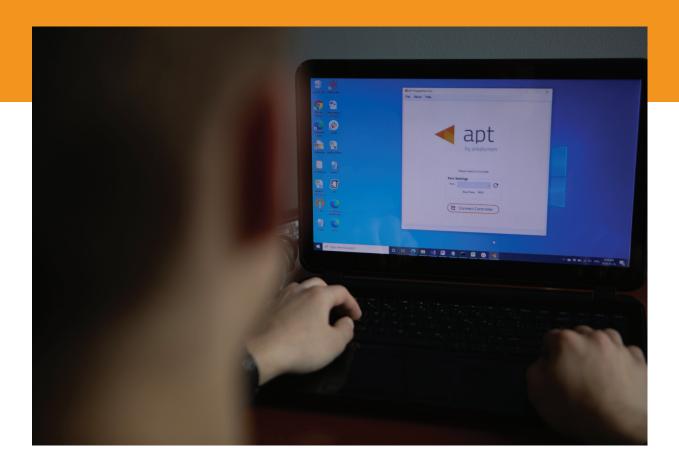
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APT Programmer Programming Guide - Engineering APT-CV5-VWC-LN Casambi

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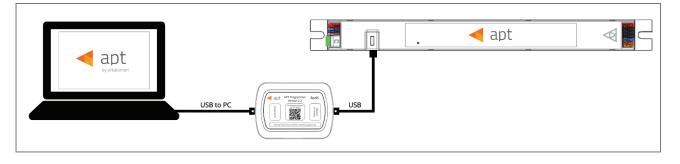
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Connecting the APT Programmer

1 Connect the APT Programmer to the PC and controller as shown in Figure 1.





Using the APT Programmer

Installing the APT Programmer Interface

- Click on the provided link to download the APT Programmer Interface folder.
- Open the folder APT Programmer Interface on a Windows-based PC, and select the file setup.exe
- 3 Launch **setup.exe** to install the APT Programmer Interface. The APT Programmer Interface shortcut will be added to the Start Menu.

Running the APT Programmer Interface

- 1 Launch the APT Programmer Interface software by selecting the application, **APT Programmer Interface**, from the Start Menu. The Programmer Connect window (shown in Figure 2) will open.
- 2 Select the COM port to which the APT Programmer is connected from the **Port** drop-down menu. If a COM port is not visible, click the button until the correct port is visible.
- Click Connect Controller to establish a connection. Once connected, the APT Programmer Interface window (shown in Figure 3) will open.

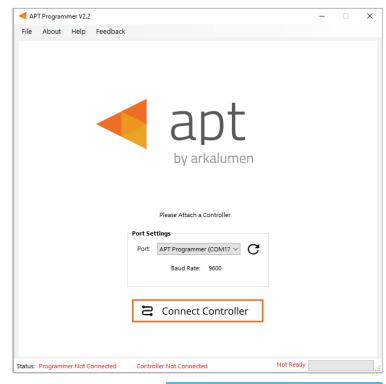


Figure 2: Programmer Connect window

Note: Once connected, if the APT Programmer is not displayed in the port list, please run the CDM212364_Setup file sent with the APT Programmer software to install the drivers.

Using the Programmer Interface Window

| APT Programmer V2.3.1 - • × File About Help Feedback Apt APT-CV5-VWC-LN Casambi BLE Mesh Basic Advanced INT Mapping | Exit the APT Programmer Interface by either clicking ×, pressing Ctrl+Q or selecting File > Exit. This will open a window with the option to save the current configuration. Note: Clicking No will discard all unsaved configurations. |
|---|--|
| Scheme Selection Output Max Current (mA) ? Current Scheme : Scheme 3 CH 1 CH 2 CH 3 CH 4 CH 5 Current Scheme : Scheme 3 - | Displays the connected APT Controller. Navigate through settings quickly by clicking on the tabs. |
| Select S theme | Open a previously saved configuration file (.ARKENC) by either clicking Open , pressing Ctrl+O or selecting File > Open from the menu. |
| Retrieve Control & Configuration | Save the current configuration by either clicking Save , pressing Ctrl+S or selecting File > Save as from the menu. A .txt file is created with a readable summary of the saved configurations and a .ARKENC file which is used to upload the saved configurations to the APT Programmer User Interface or to APT the Production Programmer. |
| | When satisfied with the configuration, click Program to program the controller. |

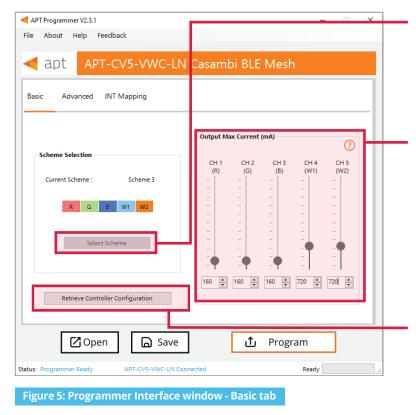
The progress bar displays the status of the current task.

if the APT Programmer Interface has successfully connected to the APT Programmer. If no connection has been established, it will read **Programmer Not Connected**. Displays the currently connected APT Controller and its hardware version. If no connected APT controller is found, it will read **Controller Not Connected**. The Ready field in the Status Bar displays:

- Ready
- Not Ready
- Successfully Programmed
- Retrieve Successful
- Wrong Controller Connected
- No Controller Identified

Figure 4: Programmer Interface window -Status Bar at bottom of window of Fig 3

Basic Tab



Configurations From Controller _ × Controller Connected: APT-CV5-VWC-LN Casambi BLE Mesh Firmware Version Basic Configurations Virtual CCT: No 4001 - 0117 Turn Off Transition: Fade Channel Currents (mA) Transition Calibration (V) CH 1: 160 CH 2: 160 No Transition Calibration Used CH 3: 160 CH 4: 720 CH 5: 720 Mapping Tables Scheme Selected Channel Assignment: CCT Mapping: N/A Scheme 3 (R-G-B-W1-W2) INT Mapping: Default Use These Configurations Cancel

Figure 6: Configurations from Controller window

Click **Use These Configurations** to import the controller's current configuration into the APT Programmer Interface.

Note: All APT Programmer Interface settings will be changed to the controller's current configuration.

Click **Select Scheme** to change the assignment of addresses to different output channels and/or calibrate control levels for CCT and master intensity (shown in Figure 6).

Output Max Current (mA) specifies the maximum current output of the two output channels of the APT Controller.

Note: Ensure these values are below the maximum allowable current of the output channels on the light engines to prevent damage to the LEDs.

Click Retrieve Controller Configuration

to view the currently programmed configurations of the connected controller. A separate will open with the controller's configuration (shown in Figure 6).

Advanced Tab

| APT Programmer V2.2 | - • × | Transition Calibration |
|--|----------------|--|
| File About Help Feedback | ambi BLE Mesh | 1 Select the Enable Transition Calibration checkbox. |
| Basic Advanced INT Mapping | | Input the driver voltage and the voltage of each of the output channels to optimize the fading behaviour of the controller. |
| () | Off Transition | Note: Click on the Optimize for BOLD button to populate the Vin and Vout values that are optimal for Arkalumen BOLD LED modules. |
| CH 4 Vout 16.0 🔹 | | Turn Off Transition |
| Optimize for BOLD | | Select either an instantaneous or fade transition when fully turning off the LEDs. |
| C Open Save | 1 Program | |
| Status: Programmer Ready APT-CV5-VW-LN-CBM Connected | Ready .:: | |

Figure 7: Programmer Interface window - Advanced tab

INT Mapping Tab

| Basic Advanced INT Mapping | | | |
|--|----------------|--|---|
| O Default Mapping Custom Mapping | ID | All Channels | ^ |
| | | (0-100) % | |
| Custom Intensity Mapping: | INT 1 INT 2 | 0.0 | _ |
| Number of Intervals: 256 | INT 2 INT 3 | 0.4 | |
| | INT 4 | 1.2 | _ |
| Function: Linear | INT 5 | 1.6 | |
| 🔾 Step | INT 6 | 2.0 | |
| Same Mapping for all Channels | INT 7 | 2.4 | |
| | INT 8 | 2.7 | |
| Export INT Mapping Table | INT 9 | 3.1 | ~ |
| Import INT Mapping Table Save INT Mapping Table | | Mapping Table Mapping Table To Controller | r |
| Status: Programmer Ready APT-CV5-VW-LN | | Program | |

 Displayed in the table, each INT value is mapped to a percentage of the maximum current for the particular channel ranging from minimum (0%) to maximum (100%). Default mapping evenly spreads out 256 values along a linear curve in which both CH1 and CH2 increase from 0% to 100%. Click the box to enable Default Mapping.

| ID | CH1-R (% Ratio) | CH2-G (% Ratio) | CH3-B (% Ratio) | CH4-W1 (% Ratio) | CH5-W2 (% Ratio) | ^ |
|---------|--------------------|--------------------|--------------------|---------------------|---------------------|----|
| Max Cur | 160 mA | 160 mA | 160 mA | 720 mA | 720 mA | |
| INT 1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| INT 2 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | |
| INT 3 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | |
| INT 4 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | |
| INT 5 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | |
| INT 6 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| INT 7 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | |
| INT 8 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | |
| | | | | | | Υ. |

Figure 9: INT Mapping Tab - Same Mapping for all Channels Unchecked

Figure 9 displays the INT Mapping table when the checkbox **Same Mapping for all Channels** is unchecked, allowing INT mapping for each Channel individually.

Uploading Intensity Mapping for Individual Channel control

- 1 Select a scheme that includes **Individual Channel Control** in the **Basic Tab**.
- 2 Click the Custom Mapping button in the INT Mapping tab.
- 3 Enter the number of Intensity intervals, ranging from 2 to 256.
- Select either Linear or Step function. Linear will create a INT mapping with linear transitions between each interval point. Step will create an INT mapping with step transitions between each interval point.

Tip: Click the **Same Mapping for All Channels** box to make the INT mappings identical for all channels CH1/CH2.

6 Add the values into the table to enter a percentage of the maximum current for either **CH1** or **CH2**.

Note: Reselecting **Default Mapping** will open a window with the option to save the current custom mappings.

- Click **Lock INT Mapping Table** to prevent changes from being made to the mapping table.
- Click the **Upload Locked INT Mapping Table To Controller** box to upload the mapping table when clicking **Program**.

Click **Unlock INT Mapping Table**, when the mapping table is locked, to make changes to the table.

| asic Advanced INT Mapping | 9 | | |
|--|----------------|-----------------|---|
| | | | |
|) Default Mapping 🔘 Custom Mappin | ID | All Channels | ^ |
| | | (0-100) % | |
| Custom Intensity Mapping: | INT 1 | 0.0 | _ |
| Number of Intervals: 256 🚔 | INT 2 | 0.4 | _ |
| | INT 3 INT 4 | 12 | _ |
| Function: Linear | INT 5 | 12 | _ |
| Step | INT 6 | 2.0 | _ |
| Same Mapping for all Channels | INT 7 | 2.0 | _ |
| S same mapping for an channels | INT 8 | 27 | _ |
| | INT 9 | 3.1 | |
| Export INT Mapping Table Import INT Mapping Table Save INT Mapping Table | | T Mapping Table | |
| 🖸 Open 🛛 🕻 | Save | | |
| | | | |

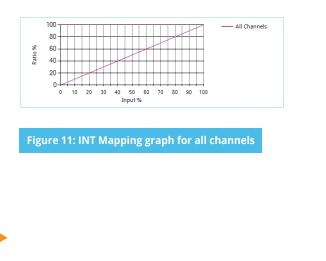
Importing a previously saved INT mapping table

 Click Import INT Mapping Table to open a previously saved mapping table in the APT Programmer Interface.

3

- 2 Select a previously saved mapping table spreadsheet file (.xslx) in the file browser.
- 3 Click **Open** in the file browser to import the file; if the spreadsheet is formatted correctly, it will be successfully imported.

Tip: Scroll to the bottom of the window to see graphs (shown in Figures 11 & 12) of the current INT mapping configuration.



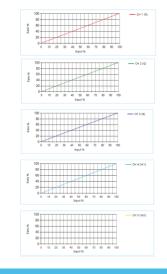


Figure 12: INT Mapping graphs for each channel

Using Excel to Customize the INT mapping table

- 1 Click **Export INT Mapping Table** to generate a spreadsheet containing the mapping table that is currently open.
- 2 Modify the mapping table directly in the spreadsheet without changing the formatting.
 - Save the spreadsheet (.xslx).

Saving the INT mapping table

- 1 Click **Save INT Mapping Table** to save the current mapping table.
- 2 Find a save location for the generated spreadsheet file (.xslx) containing the mapping table that is currently open.
 - Name and save the file in the desired location.

Generating Labels

| APT-CV5-VWC-LN | - | | > |
|---|--|---|---|
| RECONFIGURATION LABEL TO BE PRINTED | | | |
| CV5-VWC-LN-4001 CBM-0000-0000-1C016-2C016-3C016-4C072-5C000 | | | |
| APT-CV5-VWC-LN Sample Label | | | |
| R N N N N N N N N N N N N N | LED Controller ID: xxxx MAX DC P: 100W DC-V: 12-60v Las ROHS | + CH1 CH2 CH2 CH3 CH4 CH5 | |
| Place printed reconfiguration label on the area of the sample label outline Controller Information ID Number: 4001 | ned in red | | |
| Generate Labels | | | |

| 1,1 2,1 3,1 4,1 5,1 6,1 7,1 | 1,2 2,2 3,2 4,2 5,2 6,2 | 1,3 2,3 3,3 4,3 5,3 | 1,4 2,4 3,4 4,4 5,4 | 1,5 2,5 3,5 4,5 5,5 | 1,6 2,6 3,6 4,6 | 1,7 2,7 3,7 4,7 | 1,8 2,8 3,8 4,8 |
|---|--|---|---|---|---|--|--|
| 3,1 4,1 5,1 6,1 | 3,2 4,2 5,2 | 3,3 4,3 5,3 | 3,4 4,4 | 3,5 4,5 | 3,6 4,6 | 3,7 | 3,8 |
| 5,1 6,1 | 4,2 5,2 | 4,3 5,3 | 4,4 | 4,5 | 4,6 | | |
| 6,1 | | | 5,4 | | | | |
| | 6,2 | | | | 5.6 | 5.7 | 5.8 |
| 7,1 | | 6,3 | 6,4 | 6,5 | 6,6 | 6,7 | 6,8 |
| | 7,2 | 7,3 | 7,4 | 7,5 | 7,6 | 7,7 | 7,8 |
| 8,1 | 8,2 | 8,3 | 8,4 | 8,5 | 8,6 | 8,7 | 8,8 |
| 9,1 | 9,2 | 9,3 | 9,4 | 9,5 | 9,6 | 9,7 | 9,8 |
| 10,1 | 10,2 | 10,3 | 10,4 | 10,5 | 10,6 | 10,7 | 10,8 |
| 11,1 | 11,2 | 11,3 | 11,4 | 11,5 | 11,6 | 11,7 | 11,8 |
| 12,1 | 12,2 | 12,3 | 12,4 | 12,5 | 12,6 | 12,7 | 12,8 |
| 13,1 | 13,2 | 13,3 | 13,4 | 13,5 | 13,6 | 13,7 | 13,8 |
| 14,1 | 14,2 | 14,3 | 14,4 | 14,5 | 14,6 | 14,7 | 14,8 |
| 15,1 | 15,2 | 15,3 | 15,4 | 15,5 | 15,6 | 15,7 | 15,8 |
| 16,1 | 16,2 | 16,3 | 16,4 | 16,5 | 16,6 | 16,7 | 16,8 |
| 17,1 | 17,2 | 17,3 | 17,4 | 17,5 | 17,6 | 17,7 | 17,8 |
| 18,1 | 18,2 | 18,3 | 18,4 | | | 18,7 | 18,8 |
| 19,1 | 19,2 | 19,3 | 19,4 | 19,5 | | 19,7 | 19,8 |
| 20,1 | 20,2 | 20,3 | 20,4 | 20,5 | 20,6 | 20,7 | 20,8 |
| | 10,1 11,1 12,1 13,1 14,1 15,1 16,1 17,1 18,1 19,1 | 10,1 10,2 11,1 11,2 12,1 12,2 13,1 13,2 14,1 14,2 15,1 15,2 16,1 16,2 17,1 17,2 18,1 18,2 19,1 19,2 | 10.1 10.2 10.3 11.1 11.2 11.3 12.1 12.2 12.3 13.1 13.2 13.3 14.1 14.2 14.3 15.1 15.2 15.3 16.1 16.2 16.3 17.1 17.2 17.3 18.1 18.2 18.3 19.1 19.2 19.3 | 10.1 10.2 10.3 10.4 11.1 11.2 11.3 11.4 12.1 12.2 12.3 12.4 13.1 13.2 13.3 13.4 14.1 14.2 14.3 14.4 15.1 15.2 15.3 15.4 16.1 16.2 16.3 16.4 17.1 17.2 17.3 17.4 18.1 18.2 18.3 18.4 19.1 19.2 19.3 19.4 | 10.1 10.2 10.3 10.4 10.5 11.1 11.2 13.3 11.4 11.5 12.1 12.2 12.4 12.5 13.1 13.5 13.1 13.2 13.3 13.4 13.5 14.1 14.2 13.3 14.4 14.5 15.1 16.2 16.3 16.4 16.5 16.1 16.2 16.3 16.4 16.5 17.1 17.2 17.3 17.4 17.5 18.1 14.2 14.3 14.4 14.5 19.1 19.2 19.3 16.4 16.5 19.1 19.2 19.3 19.4 19.5 | 101 102 103 104 105 106 11.1 11.2 11.3 11.4 11.5 11.6 12.1 12.3 13.4 11.5 11.6 11.6 12.1 12.2 12.3 12.4 12.5 12.6 13.1 12.2 13.3 13.4 13.5 13.6 14.1 42.2 13.3 13.4 13.5 13.6 15.1 12.2 13.3 13.4 13.5 13.6 15.1 12.2 13.3 13.4 13.5 13.6 15.1 12.2 13.3 13.4 13.5 13.6 15.1 12.2 13.3 13.4 13.5 15.6 16.1 12.2 17.3 17.4 17.5 17.6 17.1 12.2 17.3 17.4 17.5 17.6 18.4 13.4 14.4 14.4 13.6 13.6 19.1 12.2 13.3 | 10. 0.2 0.3 0.4 0.5 0.6 0.7 11.1 12.2 13.3 14.4 15.5 16.6 10.7 14.2 12.3 14.4 15.5 16.6 10.7 15.1 12.2 13.3 13.4 15.5 13.6 11.7 15.1 2.2 13.3 13.4 15.5 15.6 17.7 15.1 2.2 13.3 15.4 15.5 15.6 15.7 15.1 2.2 13.3 15.4 15.5 15.6 15.7 15.1 2.2 13.3 15.4 15.5 15.6 15.7 16.1 6.2 16.4 16.5 16.6 16.7 17.1 7.2 7.3 17.4 15.2 15.6 16.7 17.1 18.1 14.2 14.3 16.4 16.5 16.7 17.1 19.1 2.2 3.3 16.4 15.5 16.7 17.1 <t< td=""></t<> |

Figure 13: Label Generation window

- Select File > Generate Label or press Ctrl +L to open the Label Generation window (shown in Figure 13).
- Input the 4-digit ID Number written on the original label (shown in Figure 13). The ID Number indicates the production build of the APT Controller.
- 3 Click Generate Labels.
- Input the starting and finishing rows and columns that will fit on the back or front labels. The selected range is highlighted in blue (Figure 14).
- 5 Select **Print Full Range** to print the whole page.
- 6 Click **Generate Labels**, the default web browser will open and display a preview of the print.

Note: Arkalumen recommends using Google Chrome and setting margins to None in the printing options.



To obtain blank labels, contact Arkalumen or visit onlinelabels.com Labels: https://www.onlinelabels.com/products/ol1930lp When ordering, Arkalumen recommends selecting Weatherproof Polyester labels in a material suited for your printer.

Generating a Report

| | | Add Company Logo |
|-------------|----------------|--------------------|
| Date: | 08/20/21 | (optional) |
| Customer: | | |
| Company: | | |
| LED Module: | | Click Above to Add |
| | | |
| | Generate Repor | rt |
| | | |

Figure 15: Report Generation window

| | Configurat | ion Report | |
|--------------------------|--------------------------|-------------------------|----------|
| Customer: Controller: | | Date: Light Engine: | 06/27/22 |
| Configurat | ion Info | | |
| | Firmware Version: | 4001-0117 | |
| | Fade to Off: | No | |
| | Transition Calibration: | Not Used | |
| | Wireless Scheme: | 3 (R-G-B-W1-W2) | |
| | CCT Mapping Table: | N/A | |
| | INT Mapping Table: | Default | |
| | | | |
| | | | |
| | | Output Max Cu | rrent |
| | Channel 1: | Output Max Cu 160 mA | rrent |
| | Channel 1: Channel 2: | | rrent |
| | | 160 mA | rrent |
| | Channel 2: | 160 mA 160 mA | rrent |

Figure 16: Example of the first page of a generated report



If at any time you have comments or suggestions regarding the APT Programmer or APT Controller, please click on the **Feedback** tab in the top menu bar to submit information to our team. We appreciate all feedback and are committed to continuously improving our products. For immediate support, please contact the Arkalumen team at 1-877-856-5533 or email support@arkalumen.com

- Select File > Generate Report, or press Ctrl+R, to open the Report Generation Window (shown in Figure 15).
- 2 Enter the **Date**, **Customer**, **Company**, and **Light Engine** part number to customize the report.
- 3 Click on the white box under **Add Company Logo** to include a logo in the report (*optional*).
- 4 Select the desired logo (.jpg) in the file browser and click **Open** (optional).
- 5 Click Generate Report, the default web browser will open and display a preview of the print (shown in Figure 16).

Note: Arkalumen recommends using Google Chrome and setting margins to None <i>in the printing options.

Arkalumen designs and manufactures intelligent LED controllers and custom LED modules for light fixture manufacturers in order to enable energy efficient and feature rich lighting solutions. For over 10 years, **Arkalumen** has focused on simple, flexible, cost effective solutions that allow highly differentiated fixtures to be launched in commercial, industrial, and residential markets. With 30+ patents, we have a history of driving innovation within the lighting industry and are proud to push the limits of what lighting in applications in education, healthcare, film and horticulture can be.

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