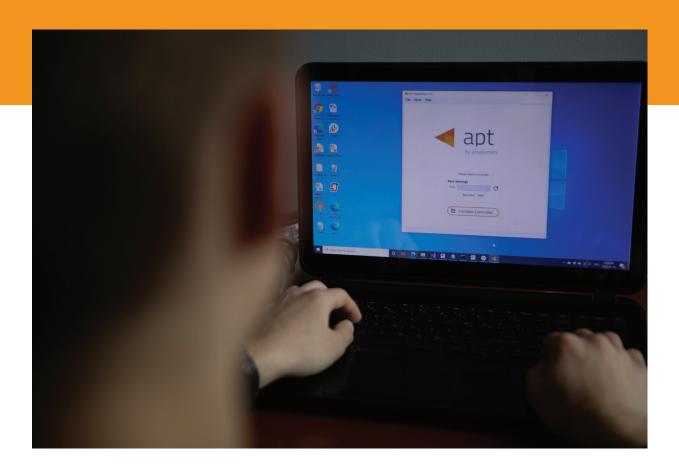
# **orholumen** ⊲ apt

APT Programmer Programming Guide - Engineering APT-CV5-VA-LN

## Table of Contents

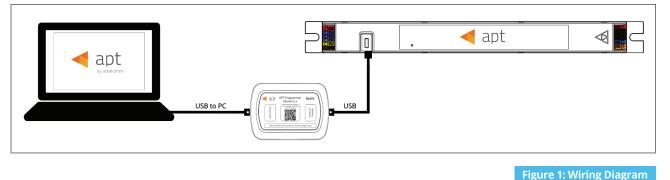
Connecting the APT Programmer1	
Using the APT Programmer1	
Using the Programmer Interface Window2	
Basic Tab3	
Advanced Tab4	
CCT Range Tab5	
CCT Mapping Tab6	
INT Mapping Tab8	3
Generating Labels1	0
Generating a Report1	





## Connecting the APT Programmer

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



#### 0.00

## 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

- 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.

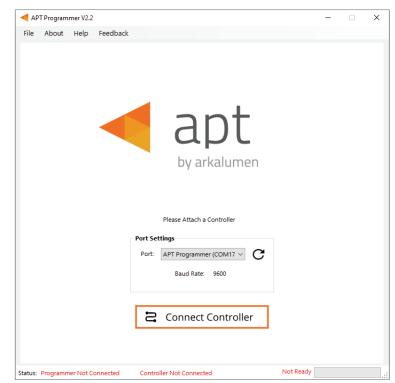


Figure 2: Programmer Connect window

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

isic Advanced INT Mapping	
DMX Settings	Output Max Current (mA)
Base Address : 1	CH 1 CH 2 CH 3 CH 4 CH 5 (R) (G) (B) (W1) (W2)
Current DMX Address : Scheme 4	
R         G         B         W1         W2           1         2         3         4         5	
Assic n DMX Address	
Debieve Controller Configuration	
Retrieve Controller Configuration	
Open Save	ப் Program
: Programmer Ready APT-CV5-VA-LN C	ionnected Ready
ure 3: Programmer Interface	window

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.

Displays the connected APT Controller.

Navigate through settings quickly by clicking on the tabs.

 Open a previously saved configuration file (.ARKENC) by either clicking **Open**, pressing **Ctrl+O** or selecting **File > Open** from the menu.

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.

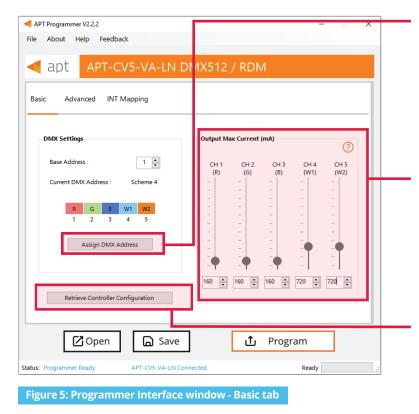


Displays **Programmer Ready** if the APT Programmer Interface has successfully connected to the APT Programmer. If no connection has been established, it will read **Programmer Not Connected**. Displays the currently connected APT Controller and its hardware version. If no connected APT controller is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



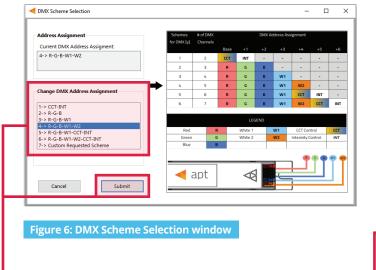
Click **Assign DMX Address** to change the assignment of addresses to different output channels and/or calibrate control levels for CCT and master intensity (shown in Figure 6).

Note: The DMX base address and DMX scheme may be changed using RDM after the controller is installed in the field.

**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 7).



Select the desired DMX Address Assignment scheme from the list and click **Submit** to update the desired DMX Address Assignment in the basic tab.

APT-CV5-VA	A-LN DMX512 / R	DM
Firmware Version	Basic Configura	ntions
4000	Virtual CCT: N	0
	Turn Off Transiti	on: Fade
Channel Currents (mA)	Transition Calib	ration (V)
CH 1: 160		CH 1 Vout: 22.4
CH 2: 160		CH 2 Vout: 22.4
CH 3: 160	Vin: 24.0	CH 3 Vout: 22.4
CH 4: 720		CH 4 Vout: 20.3
CH 5: 720		CH 5 Vout: 20.3
MX Settings		
Base Address: 1	Redundancy	Packets: 1
Channel Assignment: Schem	ne 4 (R-G-B-W1-W2)	
Use These Configuratio	ons	Cancel

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.

## **Advanced Tab**

APT Programmer V2.2.2	- 🗆 X	Transition Calibration
File About Help Feedback	12 / RDM	1 Select the <b>Enable Transition</b> <b>Calibration</b> checkbox.
Basic Advanced INT Mapping Transition Calibration ✓ Enable Transition Calibration ✓ Inable Transition Calibration ✓ CH 1 Vout: 16.0 ← CH 2 Vout: 16.0 ← CH 3 Vout: 16.0 ← CH 3 Vout: 16.0 ← CH 4 Vout: 24.0 ← CH 5 Vout:	Turn Off Transition         Instantaneous Off         Instantaneous Off         Fade Off	<ul> <li>Input the driver voltage and the voltage of each of the output ch to optimize the fading behaviou the controller.</li> <li>Note: Click on the <b>Optimize for B</b> button to populate the Vin and Vovalues that are optimal for Arkalu BOLD LED modules.</li> <li><b>Turn Off Transition</b></li> <li>Select either an instantaneous or fad transition when fully turning off the LEDs.</li> </ul>
🖾 Open 🕞 Save	1 Program	DMX Error Rejection Level
Status: Programmer Ready APT-CV5-VA-LN Connected	Ready	Enter the <b>Error Rejection Level</b> , ran from 0 to 16, to set the number of

Figure 8: Programmer Interface window - Advanced tab

annels r of

OLD out imen

ging consistent DMX packets required to make a change.

Note: Values of 0 or 1 are recommended for general use. Higher values are recommended for high interference situations, or when DMX values change rapidly or often.

## **CCT** Ranges Tab

APT Programmer V2.2 – – X File About Help Feedback	Setting a virtual (custom) CCT range
apt     APT-CV5-VA-LN DMX512 / RDM       Basic     Advanced     CCT Ranges       CCT Mapping     INT Mapping	Enter the LED CCT Range using the Minimum CCT and Maximum CCT values supported by the connected LED
LED CCT Range Minimum CCT Model: Model 1 CCT (K): 2000 + CCT (K): 4000 + - 6.000K	module. Note: The current settings will be shown as MIN CCT and MAX CCT in the right-hand column.
- 5.000К	2 Click the box to enable <b>Virtual CCT</b> .
Virtual CCT Range Enable Virtual CCT CCT Low (K): 2500 CCT Ligh (K): 3500 CCT High (K): 3500 CCT High (K): - 2,000K	3 Enter CCT low and CCT high values. Note: CCT low must be greater than or equal to Minimum CCT, while CCT high must be less than or equal to Maximum CCT.
Copen     Save     Program     Ready     APT-CV5-VA-LN Connected     Ready	The selection will be shown as <b>CCT Low</b> and <b>CCT High</b> in the column on the right-hand side of the Programmer Interface window.
Figure 9: Programmer Interface window - CCT Ranges tab	Note: If enabled, the <b>Virtual CCT Range</b> takes precedence over the <b>LED CCT Range</b> .

Enter the LED **Model** numbers associated with the minimum and maximum CCT to add further information for the generated report.



## CCT Mapping Tab

apt APT-CV5-VA-LN DMX512 / RDM	Select a DMX Scheme that includes the controlle
Basic Advanced CCT Ranges CCT Mapping INT Mapping	<ul> <li>CCT in the Basic Tab.</li> <li>Click the Custom Mapping button in the CCT Mapping tab.</li> </ul>
O Default Mapping <ul> <li>Custom CCT Mapping:</li> <li>Custom CCT Mapping:</li> <li>Number of Intervals:</li> <li>Default Statio</li> <li>Step</li> </ul> <ul> <li>CCT1</li> <li>682</li> <li>Sp</li> <li>CCT3</li> <li>Sp</li> <li>CCT4</li> <li>Step</li> <li>CCT5</li> <li>Step</li> <li>CCT6</li> <li>Step</li> <li>CCT6</li> <li>Step</li> <li>CCT6</li> <li>Step</li> <li>CCT6</li> <li>Step</li> <li>CCT6</li> <li>Step</li> <li>CCT6</li> <li>Step</li></ul>	<ul> <li>3 Enter the number of CCT Intervals, ranging from 2 to 256.</li> <li>4 Select either Linear or Step function. Linear will create a CCT mapping with linear transitions between each interval point. Step will create a C mapping with step transitions between each interval point.</li> <li>5 Add the values into the table to enter a percent CCT ratio for either CH1 or CH2. Note: Reselecting Default Mapping will open a window with option to save current custom mappings.</li> </ul>
Figure 10: Programmer Interface window - CCT Mapping tab	Click <b>Lock CCT Mapping Table</b> to prevent changes from being made to the mapping table, this will also update the graph (shown in Figure 11).
Displayed in the table, each CCT value is mapped to a percentage ratio for the particular channel ranging from minimum (0%) to maximum (100%). Default mapping evenly spreads out 256 values along a linear curve in which CH1 increases from 0% to 100% and	<i>Tip: Scroll to the bottom of the window to see the graph (Figure 11) of the current mapping configuration.</i>
CH2 decreases from 100% to 0%. Click the box to enable Default Mapping.	Click the <b>Upload Locked CCT Mapping</b> <b>To Controller</b> box to upload the mapping table when clicking <b>Program</b> .
Enable <b>Import</b> , <b>Export</b> , or <b>Save</b> of the CCT Mapping Table by selecting button. Detailed steps on page 7.	Click <b>Unlock CCT Mapping Table</b> , when the mapping table is locked, to make changes to the table.
	80 60 60 60 60 60 60 60 60 60 6

20 -

0 10 20 30 40 50 60 70 80 90 100 Input %

#### Using Excel to Customize the mapping table

- 1 Click **Export Mapping Table** to generate a spreadsheet containing the mapping table that is currently open.
- 2 Modify the mapping table directly in the spreadsheet, make sure all editable cells contain a value.
- 3 Save the spreadsheet (.xlsx).

#### Saving the mapping table

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

#### Importing a previously saved mapping table

- 1 Click **Import Mapping Table** to open a previously saved mapping table in the APT Programmer Interface.
- 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 otherwise an error message will be displayed and the file will not be imported.

## **INT Mapping Tab**

□ Default Mapping @ Custom Mapping     □ All Channels       Custom Intensity Mapping:     (0-100) %       Number of Intervals:     256 ⊕       Function:     ● Linear       ○ Step     INT 6       INT 6     2.0       INT 7     2.4       INT 8     2.7	Bas	sic Advanced CCT Ranges C	CT Mapping INT Mapping		
Custom Intensity Mapping:         INT 1         0.0           Number of Intervals:         256 -         INT 2         0.4           Function:         © Linear         INT 4         1.2           Step         INT 5         1.6           INT 6         2.0           INT 7         2.4           INT 8         2.7	0	Default Mapping	ID	All Channels	^
Number of Intervals:         256         INT 2         0.4           Function: <ul> <li>Int 3</li> <li>Int 4</li> <li>1.2</li> <li>Int 5</li> <li>I.6</li> <li>Int 6</li> <li>2.0</li> <li>Int 6</li> <li>Int 7</li> <li>Int 8</li> <li>Int 8</li> <li>Int 8</li> </ul>				(0-100) %	
Number of Intervals:         256         INT 3         0.8           Function: <ul> <li>Linear</li> <li>Step</li> <li>INT 6</li> <li>20</li> <li>INT 7</li> <li>24</li> <li>INT 8</li> <li>27</li> </ul>	C	Sustom Intensity Mapping:			
INT 3         0.8           Function: <ul> <li>INT 4</li> <li>I2</li> <li>INT 5</li> <li>I.6</li> <li>INT 6</li> <li>2.0</li> <li>INT 7</li> <li>2.4</li> <li>INT 8</li> <li>2.7</li> </ul>		Number of Intervals: 256			_
Function:         ©         Linear         INT 5         1.6           Step         INT 6         2.0         INT 6         2.0           Same Mapping for all Channels         INT 7         2.4         INT 8         2.7					_
Step         INT 5         1.6           Same Mapping for all Channels         INT 7         2.4           INT 8         2.7		Function: () Linear			_
Same Mapping for all Channels         INT 7         2.4           INT 8         2.7		0			_
INT 8 2.7		A Same Manning for all Channels			-
		Same Mapping for all Channels			-
INT 9 31			INT 9	3.1	
Export INT Mapping Table		Export INT Mapping Table			
Import INT Mapping Table  Save INT Mapping Table  Upload Locked INT Mapping Table To Controller					

 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	700 mA	
INT 1	0.0	0.0	0.0	0.0	0.0	
INT 2	0.4	0.4	0.4	0.4	0.0	
INT 3	0.8	0.8	0.8	0.8	0.0	
INT 4	1.2	1.2	1.2	1.2	0.0	
INT 5	1.6	1.6	1.6	1.6	0.0	
INT 6	2.0	2.0	2.0	2.0	0.0	
INT 7	2.4	2.4	2.4	2.4	0.0	
INT 8	2.7	2.7	2.7	2.7	0.0	
						Υ.

Figure 13: INT Mapping Tab - Same Mapping for all Channels Unchecked

Figure 13 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

- Select a DMX scheme that includes Individual Channel Control in the Basic Tab.
- 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.

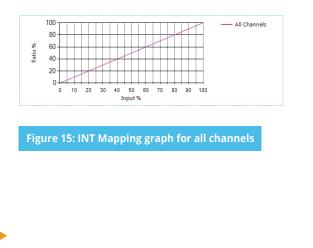
asic Advanced CCT Ranges C	CCT Mapping INT Mappi	ing		
) Default Mapping	ID		All Channels	^
			(0-100) %	
Custom Intensity Mapping:	INT 1		0.0	
Number of Intervals: 256	INT 2		0.4	
	INT 3		0.8	
	INT 4		1.2	
Function:   Linear  Sterr	INT 5		1.6	
Step	INT 6		2.0	
Same Mapping for all Channels	INT 7		2.4	_
	INT 8		2.7	_
Export INT Mapping Table	INT 9		3.1	*
Import INT Mapping Table				
Save INT Mapping Table	Lock	k INT Mapping	Table	
	Upload Locked	INT Mapping	Table To Controller	r i
				1
🖸 Open 🛛 🕞 S	Save	ப் Pro	gram	
s: Programmer Ready APT-CV5-	-VA-LN Connected		Ready	

#### Importing a previously saved INT mapping table

- Click Import INT Mapping Table to open a previously saved mapping table in the APT Programmer Interface.
- 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 15 & 16) of the current INT mapping configuration.* 

3



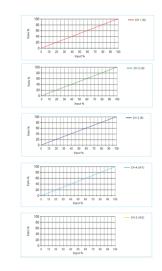


Figure 16: INT Mapping graphs for each channel

#### 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.
- 3 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-VA-LN	-	
	RECONFIGURATION LABEL TO BE PRINTED	
	CV5-VA-LN-4000 DMX4-A001-0000-1C016-2C016-3C016-4C072-5C072	
	APT-CV5-VA-LN Sample Label	
DATA- DATA- DATA- COM EARTH	CV5-VA-LN-4000 MM-4001 0000 11016-30016-40072 40072	* 511 04 04 04 05
	inted reconfiguration label on the area of the sample label outlined in red roller Information ID Number: 4000	
	Generate Labels	

view of APT-CV5-VA-LN Front Labels							-	
				Prev	iew			
A full printing page for APT-CVS-VA-LN front labels consist of 8 columns by 20 rows with a total printing of 160 labels per page.	1,1	1,2	1,3	1,4	1,5	1,6	1,7	1,8
	2,1	2,2	2,3	2,4	2,5	2,6	2,7	2,8
Printing Sheet Label Code: OL 1930LP	3,1	3,2	3,3	3,4	3,5	3,6	3,7	3,8
Click on the link below to get the printing sheet:	4,1	4,2	4,3	4,4	4,5	4,6	4,7	4,8
https://www.onlinelabels.com/products/ol1930(p	5,1	5,2	5,3	5,4	5,5	5,6	5,7	5,8
Custom Printing Range	6,1	6,2	6,3	6,4	6,5	6,6	6,7	6,8
Start :	7,1	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
Row: 1 🙀 Column: 1 🛊	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
Finish :	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
Row: 20 🐥 Column: 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
Print Full Range	16,1	16,2	16,3	16,4	16,5	16,6	16,7	16,8
Number of Labels to Print: 160	17,1	17,2	17,3	17,4	17,5	17,6	17,7	17,8
Number of Labels to Print: 160	18,1	18,2	18,3	18,4	18,5	18,6	18,7	18,8
Generate Labels	19,1	19,2	19,3	19,4	19,5	19,6	19,7	19,8
	20,1	20,2	20,3	20,4	20,5	20,6	20,7	20,8

Figure 18: Label generation print preview window

Figure 17: Label Generation window

- Select File > Generate Label or press Ctrl +L to open the Label Generation window (shown in Figure 17).
- Input the 4-digit ID Number written on the original label (shown in Figure 17). 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 18).
- 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 <i>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**

APT-CV5-VA-LN	Report Generation		×
Date:	08/10/21	Add Company Logo (optional)	
Customer:			
Company:			
LED Module:		Click Above to Add	
	Generate Repor	rt	

Figure 19: Report Generation window

APT-CV5-VA-LN

Transition Calibration:

Firmware Version:

Channel 1:

Channel 2:

Channel 3:

Channel 4:

Channel 5

001

Customer

Controller:

Configuration Info

DMX Configuration Base Address :

- Select File > Generate Report, or press Ctrl+R, to open the Report Generation Window (shown in Figure 19).
- 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 Figures 20 & 21).

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

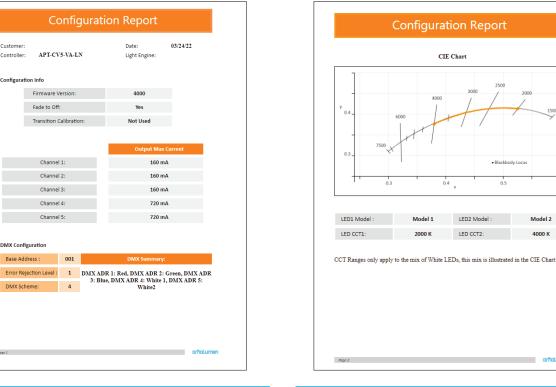


Figure 20: Example of the first page of a generated report

Figure 21: Example of the second page of a generated report

Model 2

orholum

4000 K



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

**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.

Proudly engineered and assembled in North America.

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toll free at 1.877.865.5533

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