

APT

APT-CV MODULES



Features:

- > APT-CV controllers add advanced control features to constant voltage (CV) drivers
- > Integrated between the driver and LED light engines, the DC modules are powered directly from the driver
- > Controlling between 2 and 5 output channels; Each channel's output current can be independently set and a calibrated Correlated Color Temperature (CCT) feature can enable control to precise points on the black body curve
- > APT Programmer enables in-factory and in-field changes to control settings and addresses
- > Interface options for CCT, intensity or channel control include: DMX, 0-10V, IR and custom options
- > DALI Interface option coming soon (to be released Q1 2018)
- > Wireless add-on modules coming soon integrable with Zigbee, Casambi and custom systems (to be released Q1 2018)



Product Code

The product code indicates the hardware and firmware versions of the controller.

APT-CVy-Vx	CVy – Number of output channels (ie. CV2, CV3, CV4 and CV5)		
	Vx – Hardware Version		
Hardware Version		Functionality	
	VA	DMX	COM port
	VB	DALI	COM Port (to be released Q1 2018)
	VC	Dual 0-10V	COM Port

Specifications

Power Characteristics

Input	
DC IN Current, Max.	4,160 mA
DC IN Voltage, Range	12 – 60 V
COM1 A/B Current, Max. ¹	25 mA
COM1 A/B Voltage, Max. ¹	10 V
COM2 A/B Current, Max. ¹	25 mA
COM2 A/B Voltage, Max. ¹	10 V

Output	
OUT Current, Max.	4,160 mA
OUT Voltage Range	12 – 60 V
OUT Current Per Channel, Max.	3,200 mA
OUT Voltage Per Channel, Max.	60 V
Max Power	100 W

¹: Applicable to APT-CVy-VC models only

Operating Conditions

Environmental	
Ambient Temperature, Range	-20 – 50 °C
Case Temperature, Max.	105 °C
Material	Plastic

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Ordering Information

Please specify the desired product code and configuration code when ordering.

Product Code: APT-CV_y-V_x-www	Ensure to specify the hardware version (ie. CV2, CV3, CV4, CV5 and VA, VB, VC). The internal code (www) will be provided by Arkalumen and does not need to be specified.
Configuration Code: nnnn-CHmmm-tttt-1Cxxx- [2Cxxx-3Cxxx-4Cxxx-5Cxxx-]zzzz	nnnn – COM port functionality CHmmm – Digital channel (when applicable) tttt – Calibrated CCT option [1-5]Cxxx – Channels-specific maximum current ¹ zzzz – Additional input and sensors enable

¹:Maximum current specified in increments of 10mA

Nomenclature

Input Control Options

Abbreviation		Description
DMX	DMX512A Control Input	DMX512 wired communication via COM ports 1/2 with up to 512 addresses (refer to figure 1 for wiring instructions)
DALI	DALI Control Input	DALI wired communication via COM port (refer to figure 2 for wiring instructions)
INTD	0-10V Intensity Control	Intensity control using a 0-10V dimmer connected to COM port 1 (refer to figure 3 for wiring instructions)
CCTD	0-10V CCT Control	Color temperature control using a 0-10V dimmer connected to COM port 2 (refer to figure 3 for wiring instructions). This control option also enables intensity control with a 0-10V dimmer connected on COM1 (INTD)
IR	Infrared Remote	Control via Infrared signals through programmed communication protocols including options by Lutron, Leviton, and Honeywell
DH	Daylight Harvest	Power management based on set level of light requirement Dims on detected light and specified level of sensitivity
CH	Base Channel	Base channel of the controller when using DMX or DALI

Output Control Options

Abbreviation		Description
CALC	Calibrated CCT Mapping	Color mixing of light by adjusting the ratio between LED channels according to a pre-mapped profile
C	Channel Specified Maximum Current	Used to denote the maximum current in the controller firmware for a specific channel

Configuration Code

The configuration code indicates value of key parameters within the controller as configured in factory.

Hardware Version	Configuration Code	Component Description
CV2/CV3/CV4/CV5	Configuration Code: nnnn-CHmmm-tttt-1Cxxx-[2Cxxx-3Cxxx-4Cxxx-5Cxxx-]zzzz	nnnn – COM port functionality CHmmm – Digital channel (when applicable) tttt – Calibrated CCT option [1-5]Cxxx – Channels-specific maximum current ¹ zzzz – Additional input and sensors enable

1:Maximum current specified in increments of 10mA

Code	Description	Option	Configuration Trait
nnnn	nnnn Denotes the interfacing system. The number represents the number of channels occupied by the controller on a DMX bus.	INTD	Intensity control using a 0–10V dimmer connected to the COM1 port
		CCTD	Control of output CCT and intensity using 0-10V dimmers connected to COM1 and COM2 ports
		DMX[1-7]	DMX wired communication via COM port. The number of addresses used by the controller is determined by the feature set enabled. See DMX Standard Channel Assignment table below
		DALI	Dali wired communication via COM port
CHmmm	mmm Denotes the base address of the controller on the digital bus control system (DMX or DALI). The maximum possible address is determined by the communication standard used.	CH000	No controller address; No address is used with CCTD ²
		CH001	Lowest base address option
		CH###	Base address specified
		CH512	Highest base address option for DMX
		CH064	Highest base address option for DALI
tttt	tttt denotes whether a calibrated CCT mapping is implemented within the controller.	0000	No Calibrated CCT mapping is available to the user within the controller
		CALC	A calibrated CCT mapping is available to the user within the controller. The calibration will be custom-made to match specific setups
#Cxxx	xxx Denotes the maximum current for channel # as configured in the controller's firmware. This parameter must be defined for every channel used, as defined in "qOUT"	[1-5]C###	Specified current for a given channel, specified in increments of 10mA with a maximum current of 3,200mA available. (eg. 1C100-2C100-3C100-4C100-5C100 would specify 1000mA maximum current for channels 1 through 5)
zzzz	zzzz Denotes other input methods that are enabled on the controller. Infrared remote input (IR) and daylight harvesting (DH) are available on the controller.	0000	No additional input methods enabled
		IR00	Infrared remote enabled
		OODH	Daylight harvesting enabled
		IRDH	Infrared and daylight harvesting enabled

DMX Channel Footprint Options

Enabled Feature	Required DMX Channels
Individual Channel Control	One DMX address is required per available output channel.
Calibrated CCT Control	Two additional DMX addresses are required for Calibrated CCT control, controlling the output light intensity and the color temperature respectively.

DMX Standard Channel Assignment

Number of Output Channels	Calibrated CCT Enabled	Number of DMX Channels	Standard DMX Channel Assignment
1	No	1	<ul style="list-style-type: none"> Channel 1 Intensity
2	No	2	<ul style="list-style-type: none"> Channel 1 Intensity Channel 2 Intensity
2	Yes	2	<ul style="list-style-type: none"> Calibrated CCT (CCT) Calibrated CCT (Intensity)
2	Yes	4	<ul style="list-style-type: none"> Channel 1 Intensity Channel 2 Intensity Calibrated CCT (CCT) Calibrated CCT (Intensity)
3	No	3	<ul style="list-style-type: none"> Channel 1 Intensity Channel 2 Intensity Channel 3 Intensity
3	Yes	5	<ul style="list-style-type: none"> Channel 1 Intensity Channel 2 Intensity Channel 3 Intensity Calibrated CCT (CCT) Calibrated CCT (Intensity)
4	No	4	<ul style="list-style-type: none"> Channel 1 Intensity Channel 2 Intensity Channel 3 Intensity Channel 4 Intensity
4	Yes	6	<ul style="list-style-type: none"> Channel 1 Intensity (White) Channel 2 Intensity (Red) Channel 3 Intensity (Green) Channel 4 Intensity (Blue) Calibrated CCT (CCT) Calibrated CCT (Intensity)
5	No	5	<ul style="list-style-type: none"> Channel 1 Intensity Channel 2 Intensity Channel 3 Intensity Channel 4 Intensity Channel 5 Intensity
5	Yes	7	<ul style="list-style-type: none"> Channel 1 Intensity (Warm White) Channel 2 Intensity (Cool White) Channel 3 Intensity (Red) Channel 4 Intensity (Green) Channel 5 Intensity (Blue) Calibrated CCT (CCT) Calibrated CCT (Intensity)

Please note that these are typical channel assignments only; Custom channel assignments are available upon request

Wiring Diagrams

APT-CV

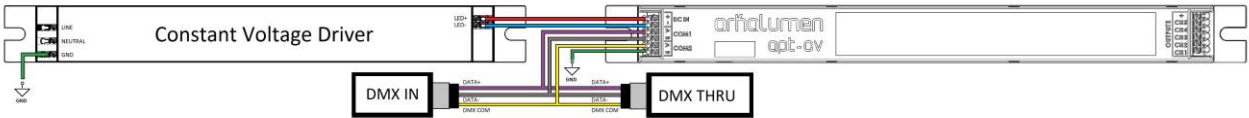


Figure 1 - APT-CV DMX Configuration (VA)

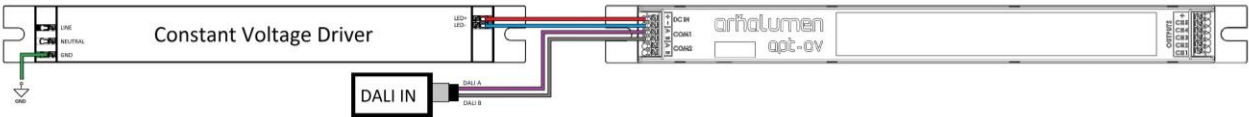


Figure 2 - APT-CV DALI Configuration (VB)

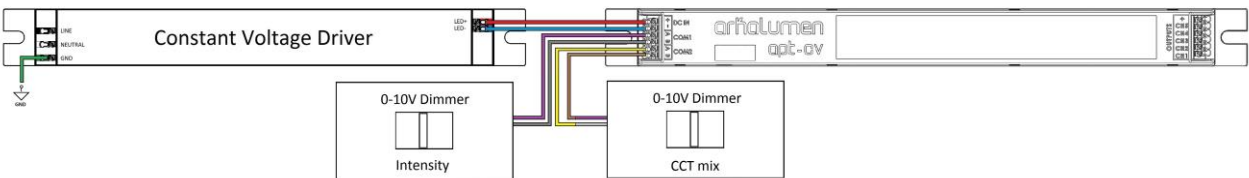
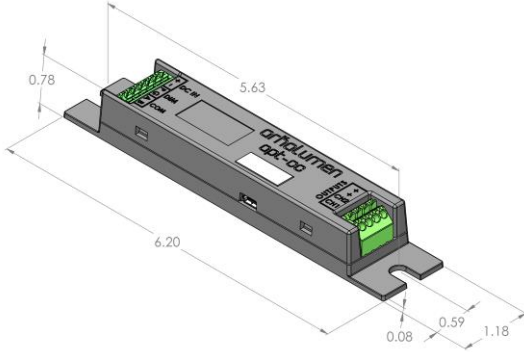


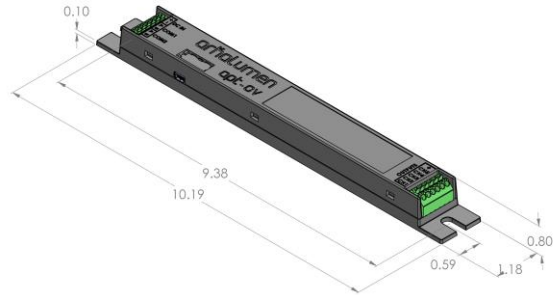
Figure 3 - APT-CV Dual 0-10V Configuration (VC)

Mechanical Drawings

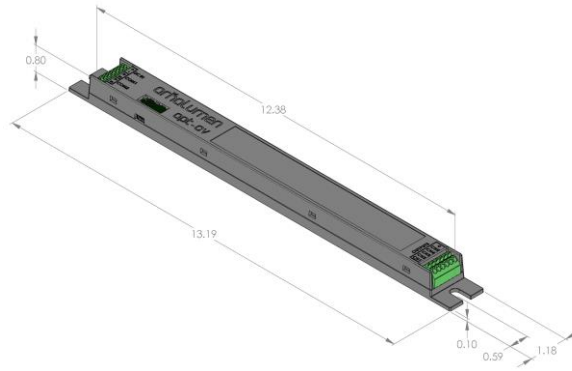
APT-CV2



APT-CV3



APT-CV4 / APT-CV5



Dimensions

	Length (in)	Width (in)	Height (in)
APT-CV2	6.20	1.18	0.78
APT-CV3	10.0	1.18	0.78
APT-CV4/ APT-CV5	13.19	1.18	0.78



APT Ecosystem Components

Add-ons are available for APT-CV controllers for enhanced functionality.

Optional Add-ons for APT-CV Controllers

Add-on	Description
Switch Array Module	External removable add-on connected to the USB port allowing in-field setting controller parameters, such as base address
Wireless Modules	Add-on modules providing wireless control capability coming soon (to be released Q1 2018)



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