

APT-CV2-Vx-LN-CVO MODULES



Features

- > APT-CV2 controllers add advanced control features to standard constant voltage (CV) drivers
- > CVO versions of the APT controllers are operable to control multiple outputs for constant voltage LED channels simultaneously
- > Integrated between the CV driver and LED modules, the DC modules are powered directly from the CV driver
- > Operable for independent control over each output channel and/or control over overall intensity and CCT
- > APT Programmer enables in-factory and in-field changes to control settings including CCT range, CCT mapping and Intensity mapping
- > Wired versions available with DMX512/RDM (VA) or 2x isolated 0-10V ports (VC)
- > Wireless versions available with Casambi BLE Mesh (VWC) or Silvair BLE Mesh (VWS)
- > Wireless controller versions available with either embedded antenna (EA) or whip antenna (WA)

Ordering Information

Product Code	Description
APT-CV2-Vx-LN-CVO-wwww	Vx – Hardware version LN – Linear form factor CVO – Constant voltage output wwww – Internal code provided by Arkalumen as a simplified configuration code for repeat orders
Hardware Version	Functionality
VA	DMX512/RDM
VC	0-10V
VWx	Wireless – BLE Mesh

System Architecture

Design Requirements
<ol style="list-style-type: none"> 1. APT controllers are designed to work with a wide range of drivers, but a fixture manufacturer must test the APT controller for driver compatibility and ensure proper system operation before installation. 2. The DC voltage output from the constant voltage driver should be matched to the desired voltage across each of the constant voltage LED channels.

Contact Arkalumen for technical support at support@arkalumen.com

Arkalumen Products may be covered by patents in the US and elsewhere.
www.arkalumen.com/patents

Operating Conditions

Environmental	
Ambient Temperature, Range	-40 to +50°C
Material	Plastic

Mechanical Specifications

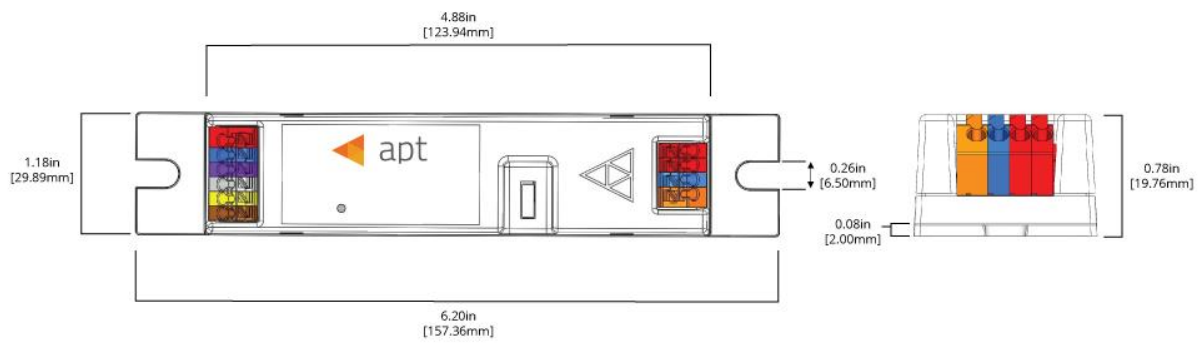


Figure 1 - APT-CV2-Vx-LN-CVO Mechanical Drawing

Dimensions	Inches
Length	6.20
Width	1.18
Height	0.78

APT-CV2-VA-LN-CVO MODULE (DMX512/RDM)

Electrical Specifications

Input

Port	Voltage		V	Current		mA	Power		W
	Min	Max		Min	Max		Min	Max	
DC IN +/-	12	60		65	4,100		-	100	
DMX Data+	-10	15		-0.8	1		-	-	
DMX Data-	-10	15		-0.8	1		-	-	

Output

Port	Voltage		V	Current		mA	Power		W
	Min	Max		Min	Max		Min	Max	
+	-	60		0	4,035		-	100	
CH1	-	60		0	4,035		-	-	
CH2	-	60		0	4,035		-	-	

Wiring Diagram



Figure 2 - APT-CV2-VA-LN-CVO DMX512/RDM Configuration

Wiring	AWG
Input, Output	16-22

INPUT, OUTPUT, EARTH



7.5-8.5mm wire preparation

DMX Address Assignment

Enabled Features	Required DMX Channels
Independent Channel Control	One DMX address is required per available output channel
Calibrated CCT Control	Two additional DMX addresses are required if calibrated CCT mapping is enabled, one for controlling the CCT and one for controlling the overall light intensity

Schemes

Scheme <i>n</i>	# of DMX Addresses	DMX Address			
		Base	+1	+2	+3
1	2	CCT	INT	-	-
2	2	WW	CW	-	-
3	4	CCT	INT	WW	CW
4	4	WW	CW	CCT	INT

Legend			
Warm White	WW	CCT Control	CCT
Cool White	CW	Intensity Control	INT

1. The assigned DMX addresses are customizable. The above table is a list of the default schemes available.
2. Changing the DMX Address Assignment does not change the physical wiring of the controller to the LED module. Please refer to Figure 3 for warm white/cool white wiring application.

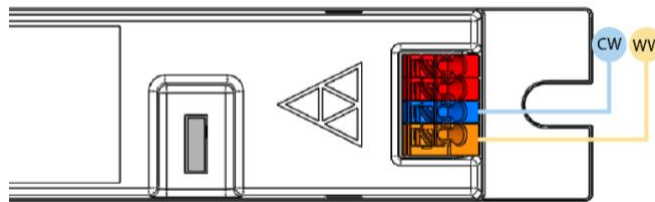


Figure 3 - Wiring APT-CV2-VA-CVO Warm White/Cool White LED module

Ordering Information

Product Code	Description
APT-CV2-VA-LN-CVO-<i>www</i>	VA – DMX512/RDM hardware version LN – Linear form factor CVO – Constant voltage output <i>www</i> – Internal code provided by Arkalumen as a simplified configuration code for repeat orders

Configuration Code	Description
DMX<i>n</i>-A<i>mmm</i>-<i>ttt</i>	DMX<i>n</i> – DMX Address Assignment Scheme A<i>mmm</i> – Base DMX address <i>ttt</i> – Output control feature

Code	Description	Option	Configuration Trait
DMX<i>n</i>	DMX<i>n</i> denotes DMX wired communication using DMX Address Assignment Scheme <i>n</i> .	DMX<i>n</i>	DMX Address Assignment Scheme <i>n</i> . See Schemes under DMX Address Assignment on page 4.
A<i>mmm</i>	<i>mmm</i> denotes the base address of the controller on a DMX bus.	A001	Lowest base address option
		A###	Base address specified between 1 and 512
		A512	Highest base address option
<i>ttt</i>	<i>ttt</i> denotes the output control features enabled on the controller.	0000	Calibrated CCT mapping disabled
		CALC	Calibrated CCT enabled. Calibrated CCT can be customized to output specific desired light metrics.

APT-CV2-VC-LN-CVO MODULE (0-10V)

Electrical Specifications

Input

Port	Voltage		Current		Power	
	Min	Max	Min	Max	Min	Max
DC IN +/-	12	60 V	75	4,100 mA	-	100 W
0-10V IN1/IN2 (Sink)	0	20 V	98	104 μ A	-	-
0-10V IN1/IN2 (Source)	0	20 V	0	300 μ A	-	-

Output

Port	Voltage		Current		Power	
	Min	Max	Min	Max	Min	Max
+	-	60 V	0	4,025 mA	-	100 W
CH1	-	60 V	0	4,025 mA	-	-
CH2	-	60 V	0	4,025 mA	-	-

Wiring Diagram



Figure 4 - APT-CV2-VC-LN-CVO Dual 0-10V Dimmer Configuration

Wiring	AWG
Input, Output	16-22

INPUT, OUTPUT



7.5-8.5mm wire preparation

Ordering Information

Product Code	Description
APT-CV2-VC-LN-CVO-<i>www</i>	VC – Isolated 0-10V hardware version LN – Linear form factor CVO – Constant Voltage Output <i>www</i> – Internal code provided by Arkalumen as a simplified configuration code for repeat orders

Configuration Code	Description
<i>nnnn-0000-tttt</i>	<i>nnnn</i> – IN1/IN2 port control features 0000 – No base address to be specified <i>tttt</i> – Output control feature

Code	Description	Option	Configuration Trait
<i>nnnn</i>	<i>nnnn</i> denotes the control features assigned to each IN port.	IN00	Intensity control enabled on IN2 port.
		CICI	Independent channel control enabled.
		INCT	Intensity control enabled on IN2 port and CCT control enabled on IN1 port.
<i>tttt</i>	<i>tttt</i> denotes the output control features enabled on the controller.	0000	Calibrated CCT mapping disabled.
		CALC	Calibrated CCT enabled. Calibrated CCT can be customized to output specific desired light metrics.

APT-CV2-VWx-LN-CVO MODULE (WIRELESS)

Electrical Specifications

Input

Port	Voltage		V	Current		mA	Power		W
	Min	Max		Min	Max		Min	Max	
DC IN +/-	12	60		42	4,100		-	100	

Output

Port	Voltage		V	Current		mA	Power		W
	Min	Max		Min	Max		Min	Max	
+	-	60		0	4,058		-	100	
CH1	-	60		0	4,058		-	-	
CH2	-	60		0	4,058		-	-	

Wireless Operating Conditions ¹	
Maximum Transmitter Power	+4dBm
Operating Frequencies	2.4GHz
Maximum Open-Air Range	270m

Contains modular transmitter with FCC ID: X8WBM832, IC (Industrial Canada) ID: 4100A-BM832

Wireless signal range of the controller will decrease if placed in a metal enclosure or placed near other wireless devices operating at similar frequencies, keep the VWx controller at least 20cm away from other VWx controllers or wireless devices. The end product with this module may subject to perform FCC part 15 unintentional emission test requirement and be properly authorized.

This device is intended for OEM integrator only.

If used with ANT020 antenna or integrated PCB trace antenna, device does not require routine evaluation or SAR testing.

Wiring Diagram

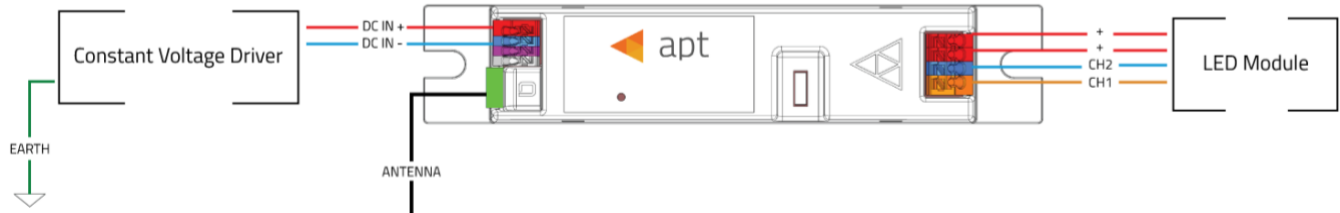
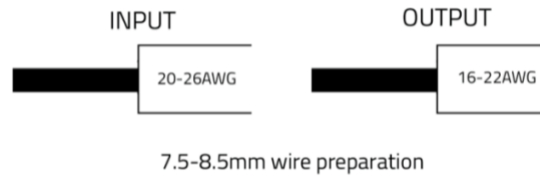


Figure 5 - APT-CV2-VWx-LN-xA-CVO Wireless Communication Configuration

Wiring	AWG
Input	20-26
Output	16-22
Antenna	ANT020*

*Integrated embedded PCB trace antenna option available on request, ANT020 antenna does not come with device by default, please include request for antenna if necessary



Ordering Information

Product Code	Description
APT-CV2-VWx-LN-yA-CVO-wwww	VWx – Wireless - BLE Mesh hardware version (VWC – Casambi BLE, VWS – Silvair BLE) LN – Linear form factor yA – Antenna version (EA – embedded antenna, WA -whip antenna) CVO – Constant voltage output wwww – Internal code provided by Arkalumen as a simplified configuration code for repeat orders

Configuration Code	Description
nnn-0000-tttt	nnn – Wireless control protocol 0000 – No base address to be specified tttt – Output control feature

Configuration Code Details

Code	Description	Option	Configuration Trait
nnn	nnn denotes the wireless communication source implemented.	CBM	Wireless via Casambi BLE Mesh
		SBM	Wireless via Silvair BLE Mesh
tttt	tttt denotes the output control features enabled on the controller.	0000	Calibrated CCT mapping disabled.
		CALC	Calibrated CCT enabled. Calibrated CCT can be customized to output specific desired light metrics.