# INVENTRONICS

Features

- Converts DMX Signal to 0/1-10V Dimming Signal
- Complies with both DMX RDM and Traditional DMX Networks
- Use Driver Dim-to-Off Capability to Eliminate AC Switch or Relay
- Powered by driver 12Vdc Vaux with Simple 3-Wire Connection to Driver
- 0~10V or 1~10V selectable (0~10V Default)
- Linear dimming curve or logarithmic dimming curve selectable (Default linear dimming curve)
- At Power on, the signal output is settable before DMX Signal is Received (Default remaining at 0V)
- In the Event of DMX Signal Loss, the signal output is settable (Default no changing to output)
- In operation, the duration of DMX signal loss judgement is settable (60s default)
- The maximum output dimming level and minimum output dimming level can be user-defined
- IP66/IP67 and UL Dry/Damp/Wet Location

Description

The CNV-DMXR2 is a DMX RDM to 0/1-10V converter that enables one or more Inventronics Controls-Ready drivers to be controlled by a DMX system. The CNV-DMXR2 is compatible with LED drivers with dim-to-off capability, 12Vdc/250mA auxiliary power supply and 0/1-10V dimming input.

The CNV-DMXR2 is DMX RDM compatible. DMX RDM (Remote Device Management) permits intelligent bi-directional communication between devices from multiple manufacturers utilizing a modified DMX512 data link. This allows the DMX RDM compatible device to be addressed and configured remotely, using a compatible DMX RDM master. DMX RDM devices are inherently compatible with standard DMX networks.
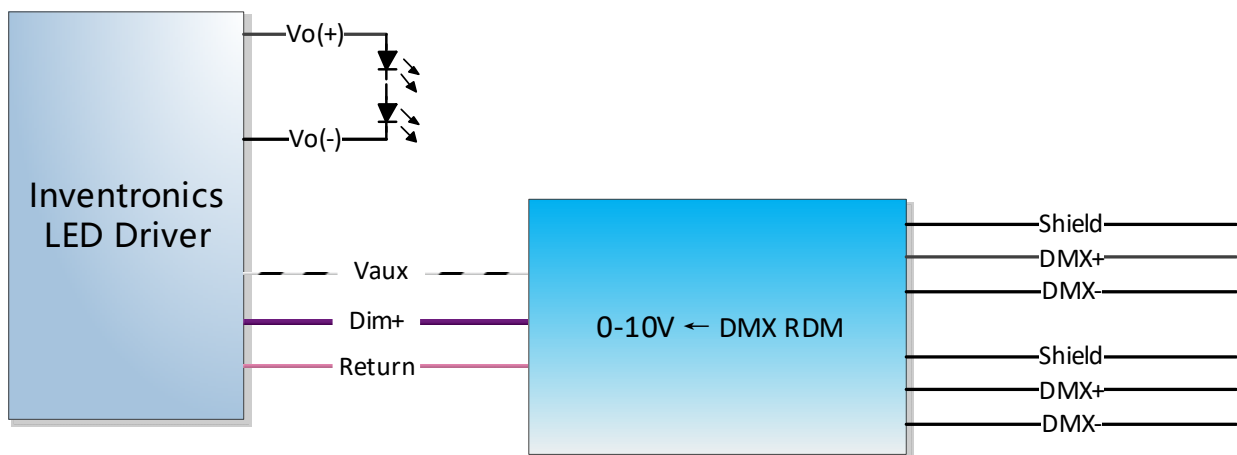
Models

P/N	Connection to LED Driver	Connection to DMX System
CNV-DMXR2	UL Wire(black/white, purple, pink)	UL Wire(black/white, purple, pink)

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Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Vaux Voltage	10.8 V	12 V	13.2 V	Support the maximum output current of LED driver to 100%Io
Iaux (Vaux Current)	-	30 mA	50 mA	200mA peak current when transmitting, 30mA for steady state
DMX+ to DMX-	-6 V	-	6 V	
DMX+ to Chassis	22M ohm	-	-	
DMX- to Chassis	22M ohm	-	-	
Logic 0 Input	-	-	-0.2 V	DMX+ to DMX-
Logic 1 Input	0.2 V	-	-	DMX+ to DMX-

Dimming Specifications

Parameter	Min.	Typ.	Max.	Notes
Dim+ Voltage	0 V	-	10 V	Vaux>12.5V
	0 V	-	(Vaux-2.5)V	Vaux≤12.5V
Dim+ Sink Current	0 mA	-	5 mA	-

Output Dimming Curve

- **0~10V dimming curve**

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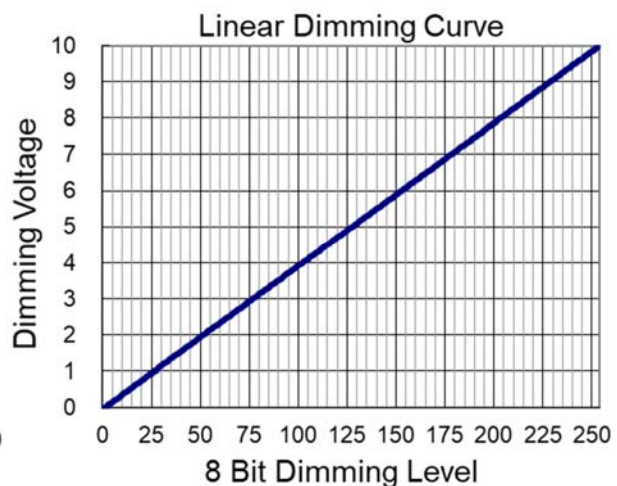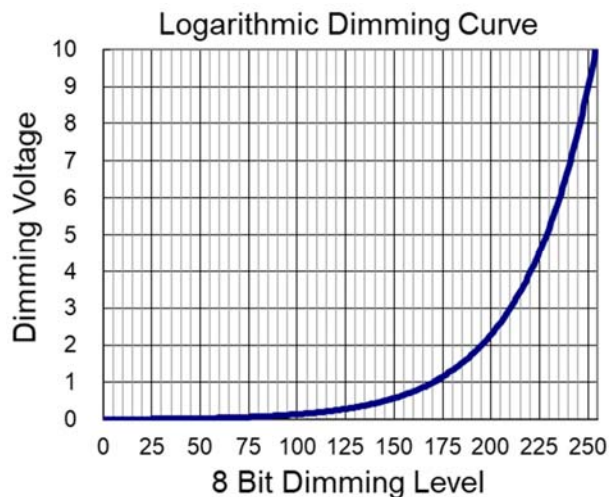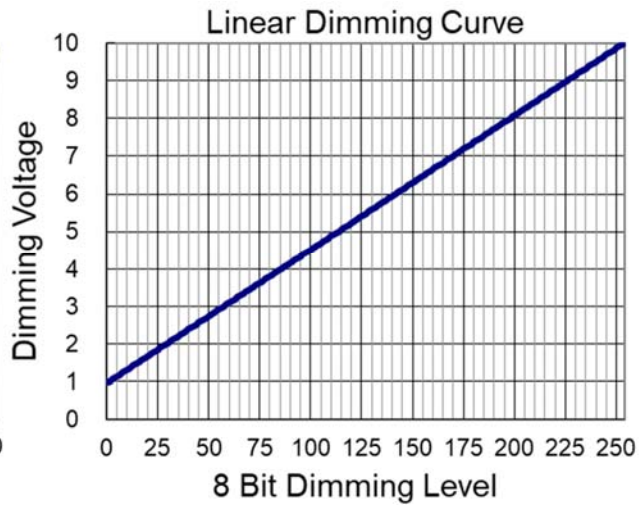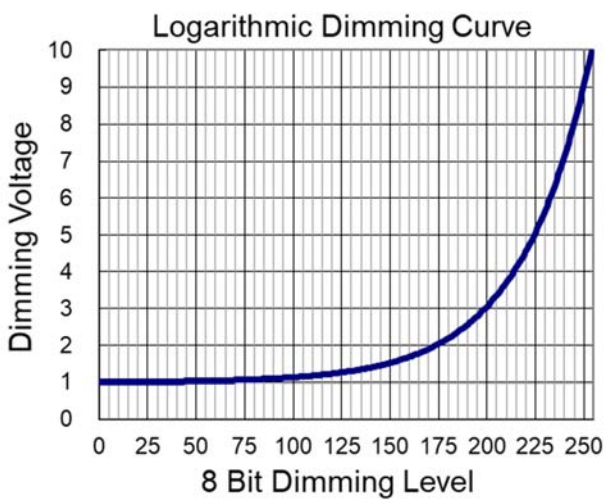
- **1~10V dimming curve**

For each kind of curve, the user can modify it as follows by the CNV-DMXR2 Tool .
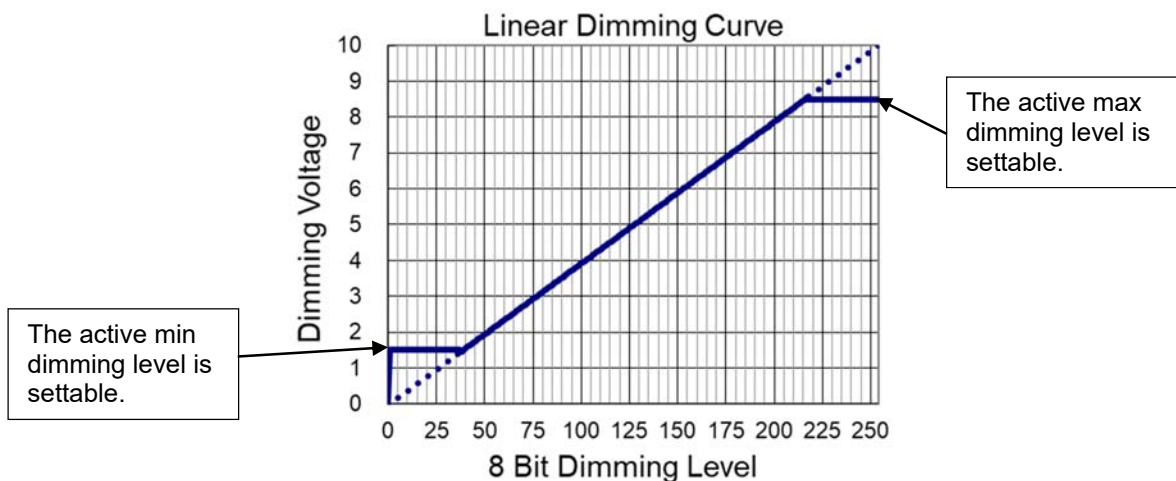
- **Modify the active dimming level range**

The active max dimming level is settable.

The active min dimming level is settable.

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● **Modify the physical min value**

The physical min voltage and min level are settable.
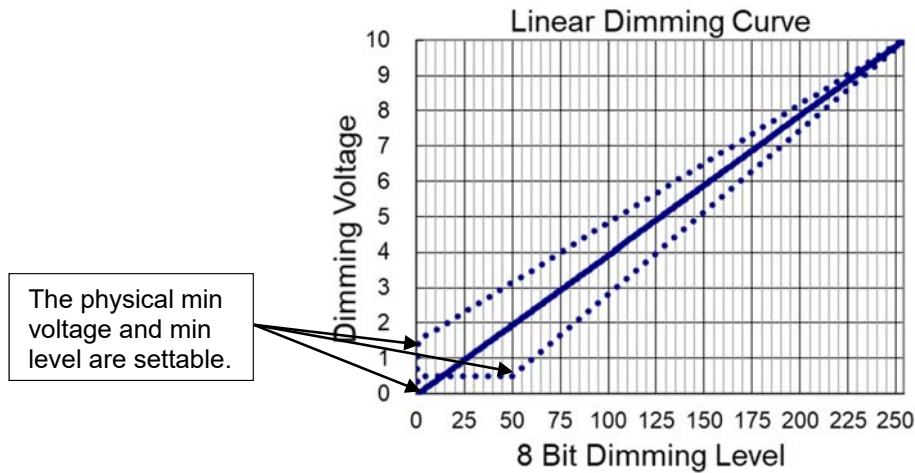
Note: (1) The logarithmic dimming curve can be modified in the same way.
(2) The default factory curve is the 0~10V linear dimming curve.

General Specifications

Parameter	Min.	Typ.	Max.	Notes

Dimensions
    Inches (L × W × H)
    Millimeters (L × W × H)
		2.72 × 1.50 × 1.06
		69 × 38 × 27
				With mounting ear
				3.54 × 1.50 × 1.06
				90 × 38 × 27

Net Weight	-	158 g	-	

Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes
Operating Temperature	-40 °C	-	+70 °C	
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 95% RH

Safety & EMC Compliance

Safety Category	Standard
UL/CUL	UL 8750, CAN/CSA-C22.2 No. 250.13
CE	EN 61347-1, EN61347-2-13
CB	IEC 61347-1 IEC 61347-2-11
EMI[1] Standards	**Notes**
EN IEC 55015[2]	Conducted emission Test & Radiated emission Test
EN IEC 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker

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Safety & EMC Compliance (Continued)

EMI[1] Standards	Notes
FCC Part 15[2]	ANSI C63.4 Class B
	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: [1] this device may not cause harmful interference, and [2] this device must accept any interference received, including interference that may cause undesired operation.
EMS[1] Standards	Notes
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

Notes: (1) The EMI and EMS test results are tested with Inventronics LED drivers.

(2) The CNV-DMXR2 is considered as a component that will be operated in combination with final equipment. Since EMI performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMI Directive on the complete installation again.
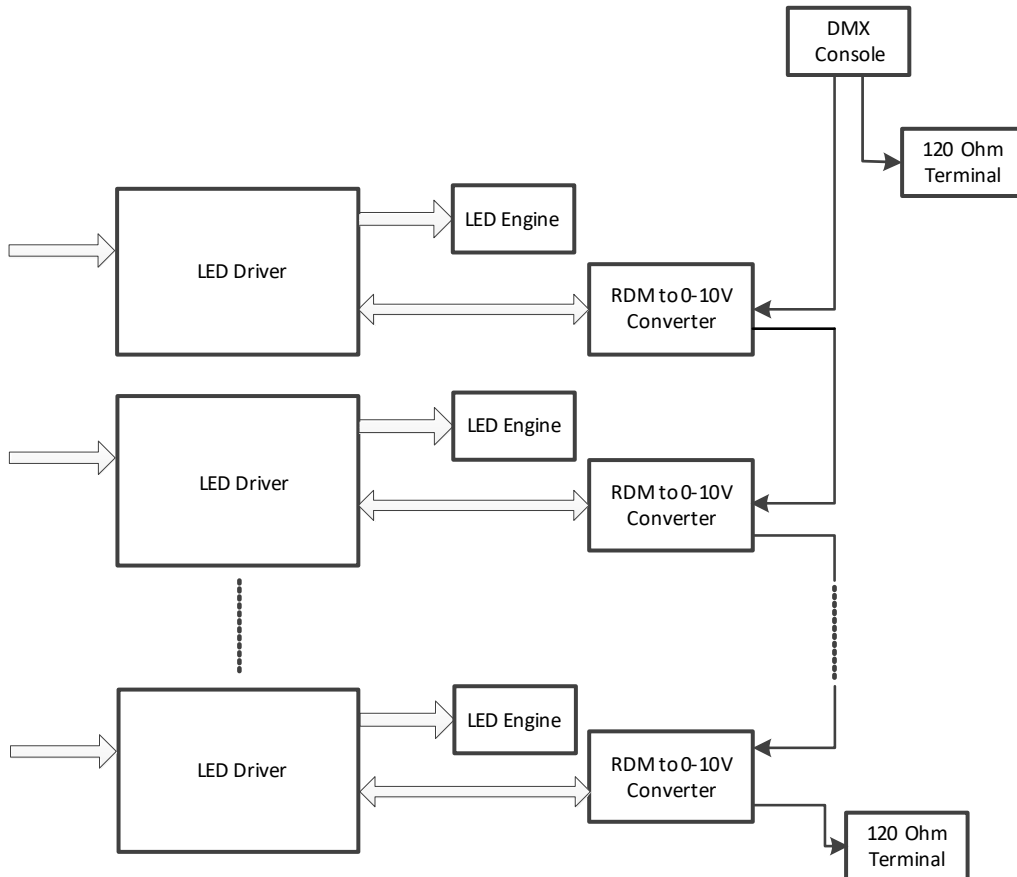
Function Definition of Interface(Connection to LED Driver)

Wire Color	Function	Notes
BLACK/WHITE	Vaux	To LED driver's auxiliary power
PURPLE	Dim+	Output to driver's 0/1-10V dimming line
PINK	Return	Return for auxiliary power and dimming signal
PURPLE	DMX+	To DMX Console
PINK	DMX-	To DMX Console
BLACK/WHITE	Shield	Connect with DMX shield

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Operation Notes

● **Wiring**

DMX-RDM daisy chain connection see the diagram below:

- Up to 32 converters may be daisy-chained, terminated by a 120-ohm resistor (connected between DMX+ & DMX- at the last converter).
- 100m maximum distance between converters.
- For best performance, a characteristic impedance of 120 ohms should be maintained for the entire length of the control line.

- **Inventronics-defined RDM Instructs (Manufacturer-Specific PIDs)**

GET Allowed	SET Allowed	RDM Parameter ID's (Slot 21-22)	Value
		Category – Set Only	0x800x
	√	RESET_CONVERTER_SETTINGS	0x8000
	√	SET_OUTPUT_RANGE_TO_0-10V	0x8001
	√	SET_OUTPUT_RANGE_TO_1-10V	0x8002
	√	SET_OUTPUT_CURVE_TO_LINEAR	0x8003
	√	SET_OUTPUT_CURVE_TO_LOGARITHMIC	0x8004
	√	SET_POWER_ON_LEVEL_ENABLE	0x8005
	√	SET_POWER_ON_LEVEL_DISABLE	0x8006
	√	SET_LOSS_OF_DATA_LEVEL_ENABLE	0x8007
	√	SET_LOSS_OF_DATA_LEVEL_DISABLE	0x8008
GET Allowed	SET Allowed	Category – Set & Get	0x801x
√	√	CNV_PHYSICAL_MIN_OUTPUT_VOLTAGE	0x8010
√	√	CNV_PHYSICAL_MIN_OUTPUT_LEVEL	0x8011
√	√	CNV_ACTIVE_MIN_OUTPUT_LEVEL	0x8012
√	√	CNV_ACTIVE_MAX_OUTPUT_LEVEL	0x8013
√	√	CNV_POWER_ON_LEVEL	0x8014
√	√	CNV_LOSS_OF_DATA_LEVEL	0x8015
√	√	CNV_LOSS_OF_DATA_TOLERANCE_TIME	0x8016

The top of the table reads: **Manufacturer-Specific PIDs Defines**

- **Loss of DMX-RDM signal**
  - If the DMX-RDM signal loses, the CNV-DMXR2 will remain 0~10V dimming output until DMX-RDM signal is received (Default).
  - Activate the function of signal loss dimming level via user-defined RDM instructs or CNV-DMXR2 Tool.
  - Enable to set the signal loss dimming level via user-defined RDM instructs or CNV-DMXR2 Tool.
  - Enable to set the duration of signal loss judgement via user-defined RDM instructs or CNV-DMXR2 Tool.

  Note: Signal loss dimming level means when the DMX-RDM signal is judged to be lost, the CNV-DMXR2 can output a certain dimming level, that the level is settable

- **Power on**
  - At power on, the CNV-DMXR2 keeps 0V output until DMX512 signal is received (Default).
  - Activate the function of power on dimming level via user-defined RDM instructs or CNV-DMXR2 Tool.
  - Enable to set the power on dimming level via user-defined RDM instructs or CNV-DMXR2 Tool.

  Note: When the function of signal loss dimming level is activated, if no DMX-RDM signal is received for a long time after powering on, and the time same as the duration of signal loss judgement, the output of CNV-DMXR2 will change to signal loss dimming level.

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- **Maximum and minimum dimming level**
  - Enable to set the maximum and minimum dimming level via user-defined RDM instructs or CNV-DMXR2 Tool.
  - Effective value range: 1≤minimum level≤maximum level≤254.
  - The output of >0 dimming level of DMX512 is restricted by the maximum and minimum dimming level.

- **Addressability**

  The CNV-DMXR2 can be addressed in two different ways.
  - If the converter is being used in a DMX RDM environment, the easiest way to address the CNV-DMXR2 is addressing and configuring via the RDM protocol.
  - If you are using the CNV-DMXR2 in a traditional DMX environment, the address may be set using the Inventronics CNV-DMXR2 Tool Software. Please contact Inventronics for any questions regarding this process.
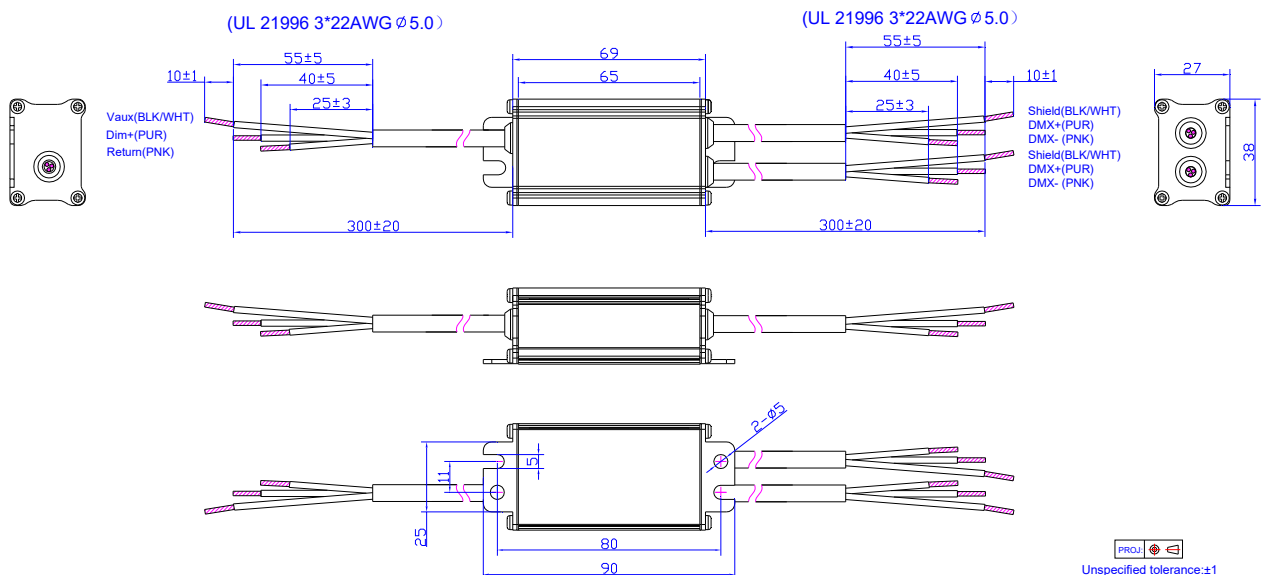
- **Software Interface and User Manual Download**
  - To download the CNV-DMXR2 software interface, please click here: CNV-DMXR2 Tool.
  - More operation details please click here to see the: CNV-DMXR2 Tool User Manual.

Compatible Driver List
  - Compatible driver list please refer to the: CNV-DMXR2 Compatible List.

Mechanical Outline

RoHS Compliance

Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU, calling for the elimination of lead and other hazardous substances from electronic products.

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Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2023-08-10	A	Datasheet Release		

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