# CITY THEATRICAL
NEW YORK • LONDON

D4 SHoW DMX Neo® Dimmer
User's Manual
Rev 1.2

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SHoW DMX Transceivers are covered by U.S. Patent # 7,432,803 and other patents pending.

Radio Compliance Information

5792M SHoW DMX Neo Radio Transceiver
FCC ID: VU65792M
IC ID: 7480A5792M

FCC Part 15
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/ TV technician for help.

Radio Frequency Notifications

FCC Notifications
RF Radiation The Product is an intentional radiator of Radio Frequency (RF) energy. In order to limit RF exposure to personnel in the immediate area, the Product should be located and installed such that a separation of at least 20 centimeters is maintained between the Product's antenna and personnel in the vicinity of the device.

Modification Warning
Caution: changes or modifications to this equipment, not expressly approved by City Theatrical Inc. could void the user's authority to operate the equipment.

Industry Canada Notifications
This Class B digital apparatus complies with Canadian ICES-003. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.
Product Installation and Configuration Guide © City Theatrical Inc. 2007

5792M Approved Antenna
To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.
This device has been designed to operate with the antennas listed below. Antennas not included in this list or having a gain greater than 5 dB are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

City Theatrical Inc. declares that this product conforms to the specifications listed in this manual, following the provisions of the European R&TTE directive 1999/5/EC:

City Theatrical Inc. vakuuttaa täten että dieses produkt tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien näiden direktiivien muiden ehtojen mukainen.
City Theatrical Inc. déclare que le produit est conforme aux conditions essentielles et aux dispositions relatives à la directive 1999/5/EC.
• EN 301 489-1, 301 489-17 General EMC requirements for Radio equipment.

• EN 60950 Safety
• EN 300 328 Technical requirements for Radio equipment.

CAUTION—This equipment is intended to be used in all EU and EFTA countries.
Outdoor use may be restricted to certain frequencies and/or may require a license for operation. Contact local Authority for procedure to follow.
Note: ESD precautions should be used when attaching or removing the antenna.
Note: Combinations of power levels and antennas resulting in a radiated power level of above 100 mW equivalent isotropic radiated power (EIRP) are considered as not compliant with the above mentioned directive and are not allowed for use within the European community and countries that have adopted the European R&TTE directive 1999/5/EC. For more details on legal combinations of power levels and antennas, contact City Theatrical Inc.
Do not use this product near water, for example, in a wet basement or near a swimming pool.
Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.

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Q52 Regulatory information
Radio Frequency Notifications
Belgique Dans le cas d'une utilisation privée, à l'extérieur d'un bâtiment, au-dessus d'un espace public, aucun enregistrement n'est nécessaire pour une distance de moins de 300m. Pour une distance supérieure à 300m un enregistrement auprès de l'IBPT est requise. Pour une utilisation publique à l'extérieur de bâtiments, une licence de l'IBPT est requise. Pour les enregistrements et licences, veuillez contacter l'IBPT.
France 2.4 GHz Bande : les canaux 10, 11, 12, 13 (2457, 2462, 2467, et 2472 MHz respectivement) sont complétement libres d'utilisation en France (en utilisation intérieur). Pour ce qui est des autres canaux, ils peuvent être soumis à autorisation selon le départment. L'utilisation en extérieur est soumis à autorisation préalable et très restreint. Vous pouvez contacter l'Autorité de Régulation des Télécommunications (http://www.art-telecom.fr) pour de plus amples renseignements.

Antennas

The D4 SHoW DMX Neo® Dimmer is provided standard with a fixed (non-removable) antenna, which would normally not be replaced. In the event that custom or modified units are provided with removable antennas, the following information will apply.

The model: 5792M can be configured with any one of the approved antennas listed below for fixed, point-to point one server and one client configuration. When the model: 5792M is configured for point-to-multipoint one server and multiple clients' configuration (client's talk to server only one at a time), client's can use any of the approved antennas listed below and the server can use any of the approved antennas listed below with the exception of the 14dBi antenna.

5792M FCC/IC Approved Antennas

Manufacturer	Model	Type	Connector	Gain
Nearson	S151AH-2450S	Omni whip	SMA plug reverse polarity	5dBi
Nearson	S141AH-2450	Omni whip	SMA plug reverse polarity	2dBi
Nearson	S131AH-2450	Omni whip	SMA plug reverse polarity	2dBi
Nearson	DG102N-2.4/5.25	Omni whip, outdoor use	SMA plug reverse polarity via provided Antenna Cable	5dBi
Tekfun	F40-N	Omni whip, outdoor use	Male N	4.5dBi
Centurion	WCP2400-MMCX4	Omni whip	MMCX jack on 4" coax pigtail	2.5dBi
Maxrad	MP24008XFPT	Panel,	SMA plug reverse polarity via	8dBi

		outdoor use	provided Antenna Cable	
Maxrad	MYP24010PT	Yagi, outdoor use	SMA plug reverse polarity via provided Antenna Cable	10dBi
Maxrad	MYP24014PT	Yagi, outdoor use	SMA plug reverse polarity via provided Antenna Cable	14dBi

5792M CE Approved Antennas

Manufacturer	Model	Type	Connector	Gain
Nearson	S151AH-2450S	Omni whip	SMA plug reverse polarity	5dBi
Nearson	S141AH-2450	Omni whip	SMA plug reverse polarity	2dBi
Nearson	S131AH-2450	Omni whip	SMA plug reverse polarity	2dBi
Nearson	DG102N-2.4/5.25	Omni whip, outdoor use	SMA plug reverse polarity via provided Antenna Cable	5dBi
Tekfun	F40-N	Omni whip, outdoor use	Male N	4.5dBi
Centurion	WCP2400-MMCX4	Omni whip	MMCX jack on 4" coax pigtail	2.5dBi

For installations governed by FCC and/or IC rules, any of the approved antennas listed above may be used with the SHoW DMX Neo Radio Module (please note the special installation requirements for use with the CTI # 5636 14 dBi Yagi Antenna).

Please note that some of the antennas listed are intended for indoor use only.

For use in locations governed by CE rules, some antenna restrictions apply. Antennas from the **5792M CE Approved Antennas** meet all requirements. Contact City Theatrical for details.

ETSI power settings for all 5792M SHoW DMX Neo Radio module equipped products, including the D4 SHoW DMX Neo® Dimmer, are based on use with the CTI 5630 5 dBi Omni Antenna. ETSI power and range will vary with the antenna used. Contact your dealer or City Theatrical for more information.

The 5792M SHoW DMX Neo Radio Module CE Declaration of Conformity

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C E

EC Certificate of Conformity

Products covered by this Certificate

5742M D4 Dimmer

Standards Applied
EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + AC:2011
EN 55103-1:2009
EN 55103-2:2009
EN 301 498-1 V1.8.1(2008-04)
EN 301 498-3 V1.4.1(2002-08)

Product Conforms to CE Marking Directive 93/68/EEC

Date of Issue: Mar 19, 2015

Year CE Marking First Affixed: 2013

Paul Kleissler, Head of Engineering

System Compliance Information

C E   The D4 SHoW DMX Neo® Dimmer is CE Certified
Standards applied:

EN 55103-1: 2009
EN 55103-2: 2009
EN 301 498-1 V1.8.1 (2008-04)
EN 301 498-3 V1.4.1 (2002-08)
EN 60950-1:2006 / A11:2009 / A1:2010 / A12:2011 / AC:2011
FCC Rules, Part 15, Subpart B, Sections 15.107 and 15.109

Products Conform to CE Marking Directive 93/68/EEC

All SHoW DMX Neo models are RoHS compliant

Safety Notices, Ratings and Power Requirements

Please read this entire manual before using your new equipment. Please keep the manual in a safe place so you can refer to it in the future as required.

The SHoW DMX Neo® System is intended for use only by qualified professionals. Connection, installation and hanging of this equipment must be performed in accordance with all pertinent local, regional and national safety codes and regulations.

The D4 SHoW DMX Neo® Dimmer is intended for indoor use.

The unit enclosure is rated NEMA 1 / IP20.

Rated operating voltage; 7.5-30VDC, 10A max

Maximum operating temperature: 0°C - 40°C.

RF Exposure: The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter.

Introduction
Thank you for using City Theatrical's D4 SHoW DMX Neo® Dimmer. The D4 SHoW DMX Neo®
Dimmer represents new benchmarks for high wireless DMX fidelity, control features, and
affordability in a miniature wireless dimmer for use with LEDs, incandescent fixtures, relays or
other devices.

The D4 SHoW DMX Neo® Dimmer is available as a wireless DMX D4 Dimmer with a built-in
SHoW DMX Neo® wireless DMX receiver and in a wired DMX only version provided with a
DMX512 input. Note that the fully wireless version can be connected via its wired DMX output
to multiple wired-only versions to create multi-channel Wireless DMX dimmer arrays in very
small spaces!

The D4 SHoW DMX Neo® Dimmer features include:
- Built-in SHoW DMX Neo® Wireless DMX Receiver
- Screw terminal output from the built-in Receiver outputs a full DMX universe of
  wirelessly received data
- Miniature size
- NEMA 1 / IP 20 rated enclosure (indoor use)
- Flexible cable antenna
- D2: Two channel DC Dimmer with 4 dimming curves (10 Amp maximum total load)
- D4: Four channel DC Dimmer with 4 dimming curves (10 Amp maximum total load)
- FCC, IC and CE Certified
- All SHoW DMX Neo® Broadcast modes are supported in the wireless DMX version:
  - Neo Mode
    - Fully configurable using RDM commands from an external RDM controller
      or the host.
    - Replace missing packets with previously received data if any are lost
    - 7mS average latency
    - Selectable Output power (1-72mW ETSI)
    - Selectable Bandwidth
    - Selectable Burst Length (when used with full frame sources)
    - Allows for shortened frame data (less than 512 bytes from source)
    - Enhanced RDM Proxy performance

  - Neo-Adaptive Mode
    - Fully configurable using RDM commands from an external RDM controller
      or the host.
    - Replace missing packets with previously received data if any are lost
    - 7mS typical latency
    - Adaptive Hopping
    - Selectable Output power (1-72mW ETSI)
    - Allows for shortened frame data (less than 512 bytes from source)
    - Enhanced RDM Proxy performance

SHoW DMX Neo® with Maximum Bandwidth Technology™

SHoW DMX Neo Wireless DMX now has Maximum Bandwidth Technology!

The 2.4GHz broadcast spectrum has become more and more crowded and the competition for
this tiny slice of free space has been intense. City Theatrical has developed a new way to

broadcast wireless DMX in this crowded area using a method we call **Maximum Bandwidth Technology™,** or **Max Technology™.** Using Max Technology™, we can now broadcast on portions of the 2.4GHz band where no Wi-Fi activity takes place at all, giving wireless DMX users a new space for their most mission critical broadcasts while at the same time not disturbing any other users of Wi-Fi that may themselves be mission critical.

Maximum Bandwidth Technology™ allows SHoW DMX Neo to change its broadcast method from full or partial spectrum Frequency Hopping to a different broadcast method called Wide Band Digital Modulation. This allows SHoW DMX to do some things that were previously impossible, such as broadcasting only in the area of Wi-Fi channel 14 where in the U.S. no Wi-Fi broadcast takes place. This allows SHoW DMX to avoid **all** Wi-Fi interference in an otherwise saturated spectrum. This is accomplished simply by selecting a Max Technology SHoW ID from the onboard user interface or via RDM.

Max Technology gives SHoW DMX the potential of a clear channel to broadcast its show on, and allows the existing Wi-Fi broadcasts in the area to be completely undisturbed by the wireless DMX broadcast. In most case, the existing 68 SHoW DMX SHoW IDs are sufficient to achieve a perfect broadcast without interfering with other radios broadcasts in the 2.4GHz band. But in some extremely demanding conditions, such as cases where venues use Wi-Fi to conduct real-time financial transactions, Max Technology can allow complete separation of Wi-Fi and wireless DMX broadcasts.

Every effort has been made to anticipate your questions in this manual, but if you have any questions that are not answered here, or you want to discuss a special application, please feel free to contact us directly at City Theatrical.

D4 SHoW DMX Neo® Dimmer Top Panel View
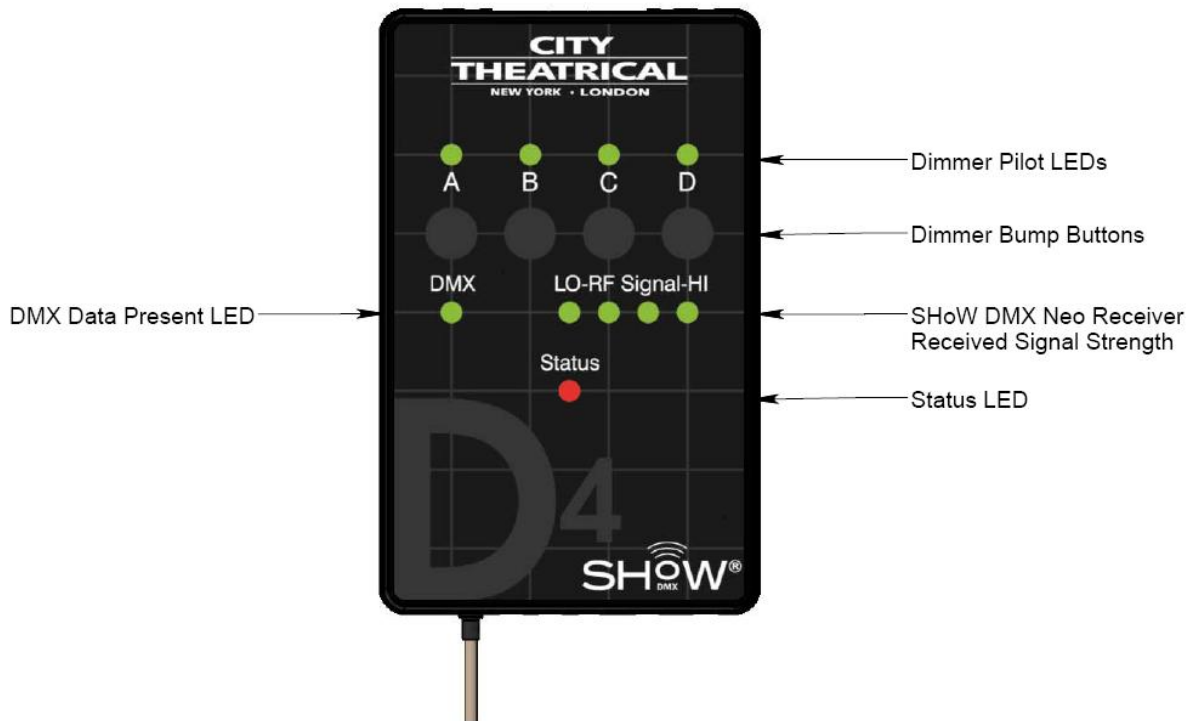
D4 SHoW DMX Neo® Dimmer Bottom Panel View
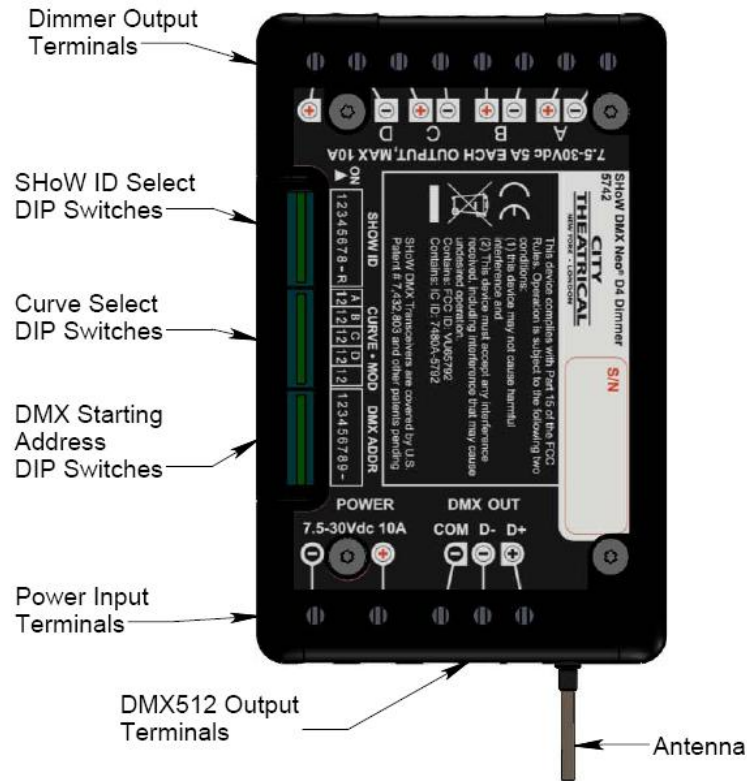
Setting up the D4 SHoW DMX Neo® Dimmer
Installation
Install the D4 SHoW DMX Neo® Dimmer in a suitable location, following the instructions below. When selecting a mounting location, note that for best results the antennas in your system must be within sight of each other and polarized the same way (see below).

Power Connections
Connect +7.5 ~ 30VDC DC Power to the Dimmer using the two provided screw terminals. Connect +VDC to the + (plus) Terminal and – (minus) VDC to the – Terminal. These terminals will accommodate up to 14 AWG / 1.5mm^2 wire. This DC power input is rated for 10A.

Be aware that the power supply voltage must match the rated voltage of the load. If you are using 12V LED tape, use 12VDC power.

Dimmer Output Connections
The four dimmer channels are labeled "A", "B", "C", and "D". Connect the load wiring using the provided screw terminals. There is a screw terminal pair provided for each dimmer. Connect +VDC to the + (plus) Terminal and – (minus) VDC to the – Terminal. These terminals will accommodate up to 14 AWG / 1.5mm^2 wire.

Over-current Protection
The D4 SHoW DMX Neo® Dimmer is provided with an internal 25A fuse for input protection. This fuse is not user service-able. Each dimmer output is provided with fuse-less hardware-

based over-current protection that functions automatically when an over-current condition exists. When overload condition is removed, normal operation resumes.

Wired DMX512 Output
This is a PLASA/ANSI compliant DMX512-A Output. DMX512 received by the internal SHoW DMX Neo® Receiver is output from the provided 3P Screw Terminals. Connect this output to down-stream DMX512 devices using suitable cable such as Cat5 UTP or approved DMX512 Cable. Short runs may be connected with neatly twisted 24AWG hookup wire. This output supports RDM functions with connected downstream responders.

The DMX512 Output is labeled Com, D- and D+, corresponding to standard DMX512 connections of Common, Data – and Data +.   You can build an XLR or RJ45 cable adapter using the table below, which shows connection to 5 pin and 3 pin XLR and RJ45 connectors:

Signal	D Series Terminal	5 Pin XLR Female	3 Pin XLR Female	RJ45
Common	COM	Pin 1	Pin 1	Pin 7 (white/brown)
Data -	D-	Pin 2	Pin 2	Pin 2 (orange)
Data +	D+	Pin 3	Pin 3	Pin 1 (white / orange)

Note that as this is an output, the XLR connector should normally be female.

Antenna Setup
The D4 SHoW DMX Neo® Dimmer is provided with a flexible cable antenna. The antenna should be fully extended and positioned so that its polarization matches the polarization of the transmitter's antenna. If the transmitter's antenna is pointing up or down (vertical polarization) the D4 SHoW DMX Neo® Dimmer's antenna should be pointed up or down (vertical polarization). If the transmitter's antenna is parallel to the floor (horizontal polarization) the D4 SHoW DMX Neo® Dimmer's antenna should be parallel to the floor (horizontal polarization). Do not point the antennas at each other.

The antenna may be concealed behind many kinds of fabric, foam core or other similar non-metallic surfaces, however note that some materials such as metal or glass are radio barriers and may block or attenuate the radio transmission. Water is also a radio barrier and human bodies are mostly water, so performer and audience locations should be considered when locating both transmitters and D4 SHoW DMX Neo® Dimmer.

City Theatrical offers a number of documents and videos to help you set up and optimize your SHoW DMX system.   For more information, contact City Theatrical or visit our website at www.citytheatrical.com

User interface
The D4 SHoW DMX Neo® Dimmer is provided with a set of switches and LED indicators for configuration and status monitoring:

(Top Panel)

1. Received Signal Strength LED Array (4 LEDs): In Range plus Low, Medium and High Received Signal Strength indicator array to allow quick monitoring of wireless in-range status and signal quality
2. DMX Present LED: Indicates DMX512 Data is being received
3. Dimmer Pilot Light LEDs: Fade up and down with the dimmer to permit easy monitoring and testing
4. Status LED: Indicates the following error/fault conditions:

Condition	Blink Pattern	Blinks followed by 1sec pause
UNDER VOLTAGE	. . .	1
INVALID DMX ADDRESS	.. .. ..	2
INVALID SHOW ID	... ...	3
OUTPUT OVER CURRENT	....	4
INPUT OVER CURRENT	....	5
OVER TEMP	....	6
OVER VOLTAGE	....	7
SHORT CIRCUIT	....	8

5. Bump Buttons: A bump button is provided for each dimmer output

(Bottom Panel)
6. DMX Addressing DIP Switch (9 position): Set the starting DMX address for the unit
7. SHoW ID DIP Switch (8 position, wireless DMX version only): Set the SHoW ID for the internal SHoW DMX Neo wireless DMX Receiver
8. Curve Selection DIP Switch (8 position): Select the dimming curve for each of the individual dimmer outputs in the unit
9. MOD Selection DIP Switch (2 position): Select the PWM modulation frequency for dimmer channels set to the LED Curve.
10. R DIP Switch (1 position): Setting this Reset switch to ON resets the Dimmer and holds in reset until set to OFF.

Wireless DMX Configuration

SHoW ID

Like the original SHoW DMX Classic system, the SHoW DMX Neo system uses SHoW IDs as a quick way to set RF configuration options. Each SHoW ID represents a combination of one of 16 hopping patterns and one of five bandwidth settings and there is a set of unique SHoW IDs for each of the supported broadcast modes.

The Transmitter and Receiver SHoW IDs must match for the units to communicate.

The D4 SHoW DMX Neo® Dimmer is preset at the factory with SHoW ID 201 for Adaptive Spread Spectrum Frequency Hopping and Neo Low Latency broadcast mode. This is the default setting for SHoW DMX Neo products, and matches the SHoW DMX SHoW Baby.

SHoW ID may be set manually using the SHoW ID DIP switches or using RDM. Whichever method is used last takes precedence. The unit maintains the last used setting over power cycles, and checks on power up to see if switches have been changed while the unit was off.

To set the SHoW ID manually, set the SHoW ID DIP Switches to the desired SHoW ID setting as shown in the table below.

In order to use RDM, you will also need an RDM controller or a lighting control console with a built-in RDM controller (see below).

Neo Mode Operation
In Neo Mode, the D4 SHoW DMX Neo® Dimmer uses CTI's new SHoW DMX Neo® broadcast format that reduces latency to ~ 7mS max and provides further resistance to interference susceptibility or creation.
Neo Mode supports Adjustable Broadcast Power, Limited Bandwidth, Limited Burst, and provides 66 new SHoW IDs, providing 16 hopping patterns in each Bandwidth setting.

Choosing Max Technology is as simple as using the onboard user interface (or RDM) to select one of the two Max Bandwidth SHoW IDs (165 or 166) rather than any other of the 68 SHoW DMX SHoW IDs (SHoW IDs 101-164 and adaptive hopping IDs 201-204) that determine the combination of frequency hopping pattern and area of the broadcast band to transmit on. This is simple and takes only seconds to do.

Neo SHoW ID Table

SHoW ID	DIP Setting 12345678	Mode	Hopping Pattern	Bandwidth
101	10100110	Neo	1	Full
102	01100110	Neo	2	Full
103	11100110	Neo	3	Full
104	00010110	Neo	4	Full
105	10010110	Neo	5	Full
106	01010110	Neo	6	Full
107	11010110	Neo	7	Full
108	00110110	Neo	8	Full
109	10110110	Neo	9	Full
110	01110110	Neo	10	Full
111	11110110	Neo	11	Full
112	00001110	Neo	12	Full
113	10001110	Neo	13	Full
114	01001110	Neo	14	Full
115	11001110	Neo	15	Full
116	00101110	Neo	16	Full

SHoW ID	DIP Setting 12345678	Mode	Hopping Pattern	Bandwidth
117	10101110	Neo	1	Limited Low, Wi-Fi 1-6
118	01101110	Neo	2	Limited Low, Wi-Fi 1-6
119	11101110	Neo	3	Limited Low, Wi-Fi 1-6
120	00011110	Neo	4	Limited Low, Wi-Fi 1-6
121	10011110	Neo	5	Limited Low, Wi-Fi 1-6
122	01011110	Neo	6	Limited Low, Wi-Fi 1-6
123	11011110	Neo	7	Limited Low, Wi-Fi 1-6
124	00111110	Neo	8	Limited Low, Wi-Fi 1-6
125	10111110	Neo	9	Limited Low, Wi-Fi 1-6
126	01111110	Neo	10	Limited Low, Wi-Fi 1-6
127	11111110	Neo	11	Limited Low, Wi-Fi 1-6
128	00000001	Neo	12	Limited Low, Wi-Fi 1-6
129	10000001	Neo	13	Limited Low, Wi-Fi 1-6
130	01000001	Neo	14	Limited Low, Wi-Fi 1-6
131	11000001	Neo	15	Limited Low, Wi-Fi 1-6
132	00100001	Neo	16	Limited Low, Wi-Fi 1-6

SHoW ID	DIP Setting 12345678	Mode	Hopping Pattern	Bandwidth
133	10100001	Neo	1	Limited Mid, Wi-Fi 5-9
134	01100001	Neo	2	Limited Mid, Wi-Fi 5-9
135	11100001	Neo	3	Limited Mid, Wi-Fi 5-9
136	00010001	Neo	4	Limited Mid, Wi-Fi 5-9
137	10010001	Neo	5	Limited Mid, Wi-Fi 5-9
138	01010001	Neo	6	Limited Mid, Wi-Fi 5-9
139	11010001	Neo	7	Limited Mid, Wi-Fi 5-9
140	00110001	Neo	8	Limited Mid, Wi-Fi 5-9
141	10110001	Neo	9	Limited Mid, Wi-Fi 5-9
142	01110001	Neo	10	Limited Mid, Wi-Fi 5-9
143	11110001	Neo	11	Limited Mid, Wi-Fi 5-9
144	00001001	Neo	12	Limited Mid, Wi-Fi 5-9
145	10001001	Neo	13	Limited Mid, Wi-Fi 5-9
146	01001001	Neo	14	Limited Mid, Wi-Fi 5-9
147	11001001	Neo	15	Limited Mid, Wi-Fi 5-9
148	00101001	Neo	16	Limited Mid, Wi-Fi 5-9

SHoW ID	DIP Setting 12345678	Mode	Hopping Pattern	Bandwidth
149	10101001	Neo	1	Limited High, Wi-Fi 7-11
150	01101001	Neo	2	Limited High, Wi-Fi 7-11
151	11101001	Neo	3	Limited High, Wi-Fi 7-11
152	00011001	Neo	4	Limited High, Wi-Fi 7-11
153	10011001	Neo	5	Limited High, Wi-Fi 7-11
154	01011001	Neo	6	Limited High, Wi-Fi 7-11
155	11011001	Neo	7	Limited High, Wi-Fi 7-11
156	00111001	Neo	8	Limited High, Wi-Fi 7-11
157	10111001	Neo	9	Limited High, Wi-Fi 7-11
158	01111001	Neo	10	Limited High, Wi-Fi 7-11
159	11111001	Neo	11	Limited High, Wi-Fi 7-11
160	00000101	Neo	12	Limited High, Wi-Fi 7-11
161	10000101	Neo	13	Limited High, Wi-Fi 7-11
162	01000101	Neo	14	Limited High, Wi-Fi 7-11
163	11000101	Neo	15	Limited High, Wi-Fi 7-11
164	00100101	Neo	16	Limited High, Wi-Fi 7-11
165	10100101	Max	1	Limited, Wi-Fi 13-14
166	01100101	Max	2	Limited, Wi-Fi 13-14

Neo Adaptive Mode Operation

The D4 SHoW DMX Neo® Dimmer can be configured to operate in the new Neo Adaptive (AFHSS) Mode. Neo Adaptive Mode uses an Adaptive Spread Spectrum Frequency Hopping broadcast format in which the system detects interference and adapts its frequency hopping channel set automatically to avoid it.

Neo Adaptive Mode supports Adjustable Broadcast Power and provides 4 new Adaptive Mode SHoW IDs. Latency is also reduced to ~7mS max in Adaptive Mode.

Neo Adaptive SHoW ID Table

SHoW ID	DIP Setting 12345678		Mode	Hopping Pattern	Bandwidth
201	10010011		Neo Adaptive	Adaptive	Full
202	01010011		Neo Adaptive	Adaptive	Full
203	11010011		Neo Adaptive	Adaptive	Full
204	00110011		Neo Adaptive	Adaptive	Full

Adjustable Output Power

The broadcast power of the D4 SHoW DMX Neo® Dimmer is adjustable to allow the user to calibrate the system's broadcast power to match the requirements of the application. Note that adjustable output power affects the D4 SHoW DMX Neo® Dimmer during RDM transactions and during Neo Adaptive mode operation, when the internal radio broadcasts responses back to the controlling transmitter. Output power adjustments are made in the D4 SHoW DMX Neo® Dimmer using RDM.

Limited Bandwidth mode

In Limited Bandwidth mode, the SHoW DMX Neo system is assigned to one of three sub-bands of the full 2.4GHz spectrum. Each sub-band occupies approximately 2/5s of the full band, with one sub-band positioned at the low end, one in the center, and one at the high end of the full spectrum. The three sub-bands overlap and each avoids some combination of Wi-Fi channels. This will allow the D4 SHoW DMX Neo® Dimmer to be set to broadcast in a different area of the spectrum than other equipment being used in the area, to minimize or eliminate interference with Wi-Fi or other channel specific or limited bandwidth equipment.

Limited Bandwidth mode settings are configured using SHoW IDs (see above).

Limited Burst DMX Output

Limited Burst mode reduces the number of DMX channels and the amount of radio energy that is broadcast by the Transmitter.

If you don't need all 512 DMX values and you need to control the radio energy in your system as much as possible, then you can use Limited Burst to target only the DMX channels you need, and reduce your radio footprint even further.

In SHoW DMX Neo Limited Burst mode, the user may select a contiguous group of 51 slots or more DMX slots in multiples of 52 slots (51+52, 51+104, etc.). Limited Burst slot counts include: 51, 103, 155, 207, 259, 311, 363, 415, and 467. These may be assigned to any starting address that will not exceed the total 512 slot count when added to the remaining slots in the selected Burst size (e.g. with 467 slots, the highest allowed starting address is 46, as 46+466 = 512).

Note that Limited Burst settings are configured in the SHoW DMX Neo transmitter being used with the D4 Dimmer. It is supported by the D4 Dimmer but there are no settings needed in the D4 to use it.

RDM Operation
RDM stands for Remote Device Management. RDM is a lighting control protocol enhancement to DMX512 specified by PLASA (formerly ESTA); the official name is *ANSI/ESTA E1.20, Entertainment Technology - Remote Device Management over USITT DMX512*.

Using RDM, you can select one of the 70 available Neo SHoW IDs, adjust the broadcast power, configure for limited burst transmission, edit the RDM Device Label, and enable or disable RDM traffic. You can also configure the dimmer functions, including configuration of the unit starting address, individual output dimmer curve, etc.

The D4 SHoW DMX Neo® Dimmer is fully enabled as an RDM proxy system, so you can use RDM to manage your D4 SHoW DMX Neo® Dimmer and any connected RDM responders that are downstream of the system.

Remember that when RDM is enabled, the system uses ~ 25% of its available DMX bandwidth for RDM so DMX fidelity and refresh rate are reduced. For best DMX fidelity, disable RDM traffic from the receivers back to the transmitting unit when you are not using RDM.

You can use RDM to change SHoW IDs in connected devices. Remember that once you have changed the SHoW ID in a connected receiver, you will lose communication with that receiver until you change your transmitter to the matching SHoW ID.

D4 SHoW DMX Neo® Dimmer RDM Parameter IDs
The D4 SHoW DMX Neo® Dimmer supports the all mandatory RDM Parameter IDs (PIDs) plus to following PIDs:

> PROXIED_DEVICE_COUNT
> PROXIED_DEVICES_ENHANCED
> SUPPORTED_PARAMETERS
> PARAMETER_DESCRIPTION
> DEVICE_MODEL_DESCRIPTION
> MANUFACTURER_LABEL
> DEVICE_LABEL
> FACTORY_DEFAULTS
> SOFTWARE_VERSION_LABEL
> DMX_BLOCK_ADDRESS
> SENSOR_DEFINITION
> SENSOR_VALUE
> RECORD_SENSORS
> OUTPUT_RESPONSE_TIME
> OUTPUT_RESPONSE_TIME_DESCRIPTION
> MODULATION_FREQUENCY
> MODULATION_FREQUENCY_DESCRIPTION
> SHOW_ID
> OUTPUT_POWER
> RDM_PROXY_ENABLED
> LATENCY

DMX_RDM_INTERLEAVE
DMX_START_ADDRESS
SLOT_INFO
SLOT_DESCRIPTION
SENSOR_DEFINITION
SENSOR_VALUE
RECORD_SENSORS
CURVE
CURVE_DESCRIPTION
IDENTIFY_DEVICE

In order to allow RDM traffic and discovery and control of connected Responders you must enable RDM Traffic (Set RDM_TRAFFIC_ENABLE to 01).

To learn more about RDM, a good place to start is the Wikipedia article on RDM (lighting) at: http://en.wikipedia.org/wiki/RDM_(lighting)

Dimmer Configuration
The D4 SHoW DMX Neo® Dimmer has four independent Pulse Width Modulated (PWM) VDC dimmer outputs. Each output responds to a separate DMX512 slot; these slots are addressed contiguously with the first slot being the Starting Address. Each output can be configured individually with one of three dimming curves or as a NON-DIM.

DMX addressing
Set the starting address for the D4 SHoW DMX Neo® Dimmer using the DMX Address DIP switch. The nine switch positions set the starting DMX address (this is a binary value). A complete DMX Starting Address DIP Switch Table is provided in Appendix A.

DMX addressing may be set manually using the DMX Starting Address DIP switches or using RDM. When RDM is used, the individual dimmer channels may be set independently to any DMX address. When the DIP switched are used, the channels are addressed contiguously form the base address set by the switch. The highest address that can be set by the DIP switch is limited to 509 in the D4 Dimmer and 511 in the D2 Dimmer.

Whichever method is used last takes precedence. The unit maintains the last used setting over power cycles, and checks on power up to see if switches have been changed while the unit was off.

Selecting Dimmer Curves

The dimming curve can be set individually for each 5A Dimmer output. The D4 SHoW DMX Neo® Dimmer has an eight position DIP Switch with two positions for each dimmer output.

Dimmer	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Switch 7	Switch 8	Function
A	OFF	OFF							Normal Dimming, ISL Curve
	OFF	ON							NON - DIM
	ON	OFF							Linear Dimming Curve
	ON	ON							LED Curve
B			OFF	OFF					Normal Dimming, ISL Curve
			OFF	ON					NON - DIM
			ON	OFF					Linear Dimming Curve
			ON	ON					LED Curve
C					OFF	OFF			Normal Dimming, ISL Curve
					OFF	ON			NON - DIM
					ON	OFF			Linear Dimming Curve
					ON	ON			LED Curve
D							OFF	OFF	Normal Dimming, ISL Curve
							OFF	ON	NON - DIM
							ON	OFF	Linear Dimming Curve
							ON	ON	LED Curve

The ISL (Inverse Square Law) Curve is intended for incandescent lamp dimming and is similar to a conventional mains-powered lighting dimmer curve. The PWM period for ISL is 60Hz. The NON-DIM function is intended for relays and other devices requiring switched power without PWM dimming.

The Linear Curve is a simple linear scale that can be used to drive DC integrators or other devices where linear response needed. The Linear PWM period is 60Hz.

The LED Curve is intended for controlling LEDs but may be used for other specialized loads.

The LED Curve Modes have been optimized for flicker free performance in TV and Film applications. All settings have been camera tested with motion picture film and digital cameras. The settings are different to allow compensation for variations in shutter speed and shutter angle. A camera test is recommended to confirm the correct setting has been selected.

The Mode Settings include TV/Film Mode 1 - 4 which are DIP selectable, and TV/Film Mode 5 which is selectable via RDM only using the MODULATION_FREQUENCY RDM parameter.

The D4 SHoW DMX Neo® Dimmer has a two position DIP switch for setting the TV/Film Mode:

OFF	OFF	TV/Film Mode 1
ON	OFF	TV/Film Mode 2
OFF	ON	TV/Film Mode 3
ON	ON	TV/Film Mode 4

The settings are also provided to allow control of other specialized loads (see below).

Dimmer curves and Modes may be set manually using the Dimmer Curve and Mode DIP switches or using RDM. Whichever method is used last takes precedence. The unit maintains the last used setting over power cycles, and checks on power up to see if switches have been changed while the unit was off.

Smoothing (Dimmer Response Time)
When the LED Curve is selected, one of four different smoothing settings can be selected using RDM. The smoothing setting determines how quickly the dimmer responds to changes in DMX level. With the fastest smoothing setting (5ms) the dimmer and connected LED loads will respond immediately to any level change. As longer smoothing settings are selected, the dimmer and connected LED loads will "ramp" more smoothly between DMX levels, simulating the delayed response of an incandescent filament lamp. The four Smoothing settings are:
- 5ms
- 100ms (default)
- 200ms
- 400ms

The selected Smoothing setting affects all channels configured with the LED Curve. The default setting is 100ms. The Smoothing (Dimmer Response Time) setting is selected via RDM using the DIMMER_RESPONSE_TIME Parameter.

Loading and Voltage Drop
The D4 SHoW DMX Neo® Dimmer is a constant voltage PWM dimmer and so will work with any size LED load that is within the Dimmer's 5A current and 7.5-30VDC voltage range. Note that constant voltage dimmers do not compensate for voltage drop in load wiring so care should be taken to optimize load wiring designs by minimizing run length, assuring termination quality, and assuring adequately sized wire is used.

Appendix A: DMX512 Starting Address DIP Switch Tables

Start Address	DIP Setting 123456789	Start Address	DIP Setting 123456789	Start Address	DIP Setting 123456789	Start Address	DIP Setting 123456789
1	100000000	51	110011000	101	101001100	151	111010010
2	010000000	52	001011000	102	011001100	152	000110010
3	110000000	53	101011000	103	111001100	153	100110010
4	001000000	54	011011000	104	000101100	154	010110010
5	101000000	55	111011000	105	100101100	155	110110010
6	011000000	56	000111000	106	010101100	156	001110010
7	111000000	57	100111000	107	110101100	157	101110010
8	000100000	58	010111000	108	001101100	158	011110010
9	100100000	59	110111000	109	101101100	159	111110010
10	010100000	60	001111000	110	011101100	160	000001010
11	110100000	61	101111000	111	111101100	161	100001010
12	001100000	62	011111000	112	000011100	162	010001010
13	101100000	63	111111000	113	100011100	163	110001010
14	011100000	64	000000100	114	010011100	164	001001010
15	111100000	65	100000100	115	110011100	165	101001010
16	000010000	66	010000100	116	001011100	166	011001010
17	100010000	67	110000100	117	101011100	167	111001010
18	010010000	68	001000100	118	011011100	168	000101010
19	110010000	69	101000100	119	111011100	169	100101010
20	001010000	70	011000100	120	000111100	170	010101010
21	101010000	71	111000100	121	100111100	171	110101010
22	011010000	72	000100100	122	010111100	172	001101010
23	111010000	73	100100100	123	110111100	173	101101010
24	000110000	74	010100100	124	001111100	174	011101010
25	100110000	75	110100100	125	101111100	175	111101010
26	010110000	76	001100100	126	011111100	176	000011010
27	110110000	77	101100100	127	111111100	177	100011010
28	001110000	78	011100100	128	000000010	178	010011010
29	101110000	79	111100100	129	100000010	179	110011010
30	011110000	80	000010100	130	010000010	180	001011010
31	111110000	81	100010100	131	110000010	181	101011010
32	000001000	82	010010100	132	001000010	182	011011010
33	100001000	83	110010100	133	101000010	183	111011010
34	010001000	84	001010100	134	011000010	184	000111010
35	110001000	85	101010100	135	111000010	185	100111010
36	001001000	86	011010100	136	000100010	186	010111010
37	101001000	87	111010100	137	100100010	187	110111010
38	011001000	88	000110100	138	010100010	188	001111010
39	111001000	89	100110100	139	110100010	189	101111010
40	000101000	90	010110100	140	001100010	190	011111010
41	100101000	91	110110100	141	101100010	191	111111010
42	010101000	92	001110100	142	011100010	192	000000110
43	110101000	93	101110100	143	111100010	193	100000110
44	001101000	94	011110100	144	000010010	194	011000010
45	101101000	95	111110100	145	100010010	195	110000110
46	011101000	96	000001100	146	010010010	196	001000110
47	111101000	97	100001100	147	110010010	197	101000110
48	000011000	98	010001100	148	001010010	198	011000110
49	100011000	99	110001100	149	101010010	199	111000110
50	010011000	100	001001100	150	011010010	200	000100110

Start Address	DIP Setting 123456789	Start Address	DIP Setting 123456789	Start Address	DIP Setting 123456789	Start Address	DIP Setting 123456789
201	100100110	251	110111110	301	101101001	351	111110101
202	010100110	252	101111110	302	011101001	352	000001101
203	110100110	253	101111110	303	111101001	353	100001101
204	001100110	254	011111110	304	000011001	354	010001101
205	101100110	255	111111110	305	100011001	355	110001101
206	011100110	256	000000001	306	010011001	356	001001101
207	111100110	257	100000001	307	110011001	357	101001101
208	000010110	258	010000001	308	001011001	358	011001101
209	100010110	259	110000001	309	101011001	359	111001101
210	010010110	260	001000001	310	011011001	360	000101101
211	110010110	261	101000001	311	111011001	361	100101101
212	001010110	262	011000001	312	000111001	362	010101101
213	101010110	263	111000001	313	100111001	363	110101101
214	011010110	264	000100001	314	010111001	364	001101101
215	111010110	265	100100001	315	110111001	365	101101101
216	000110110	266	010100001	316	001111001	366	011101101
217	100110110	267	11100001	317	101111001	367	111101101
218	010110110	268	001100001	318	011111001	368	000011101
219	110110110	269	101100001	319	111111001	369	100011101
220	001110110	270	011100001	320	000000101	370	010011101
221	101110110	271	111100001	321	100000101	371	110011101
222	011110110	272	000010001	322	010000101	372	001011101
223	111110110	273	100010001	323	110000101	373	101011101
224	000001110	274	010010001	324	001000101	374	011011101
225	100001110	275	110010001	325	101000101	375	111011101
226	010001110	276	001010001	326	011000101	376	000111101
227	110001110	277	101010001	327	111000101	377	100111101
228	001001110	278	011010001	328	000100101	378	010111101
229	101001110	279	111010001	329	100100101	379	110111101
230	011001110	280	000110001	330	010100101	380	001111101
231	111001110	281	100110001	331	110100101	381	101111101
232	000101110	282	010110001	332	001100101	382	011111101
233	100101110	283	110110001	333	101100101	383	111111101
234	010101110	284	001110001	334	011100101	384	000000011
235	110101110	285	101110001	335	111100101	385	100000011
236	001101110	286	011110001	336	000010101	386	010000011
237	101101110	287	111110001	337	100010101	387	110000011
238	011101110	288	000001001	338	010010101	388	001000011
239	111101110	289	100001001	339	110010101	389	101000011
240	000011110	290	010001001	340	001010101	390	011000011
241	100011110	291	110001001	341	101010101	391	111000011
242	010011110	292	001001001	342	011010101	392	000100011
243	110011110	293	101001001	343	111010101	393	100100011
244	001011110	294	011001001	344	000110101	394	010100011
245	101011110	295	111001001	345	100110101	395	110100011
246	011011110	296	000101001	346	010110101	396	001100011
247	111011110	297	100101001	347	110110101	397	101100011
248	000111110	298	010101001	348	001110101	398	011100011
249	100111110	299	110101001	349	101110101	399	111100011
250	010111110	300	001101001	350	011110101	400	000010011

Start Address	DIP Setting 123456789	Start Address	DIP Setting 123456789	Start Address	DIP Setting 123456789
401	100010011	451	110000111	501	101011111
402	010010011	452	001000111	502	011011111
403	110010011	453	101000111	503	111011111
404	001010011	454	011000111	504	000111111
405	101010011	455	111000111	505	100111111
406	011010011	456	000100111	506	010111111
407	111010011	457	100100111	507	110111111
408	000110011	458	010100111	508	001111111
409	100110011	459	110100111	509	101111111
410	010110011	460	001100111	510	011111111
411	110110011	461	101100111	511	111111111
412	001110011	462	011100111		
413	101110011	463	111100111		
414	011110011	464	000010111		
415	111110011	465	100010111		
416	000001011	466	010010111		
417	100001011	467	110010111		
418	010001011	468	001010111		
419	110001011	469	101010111		
420	001001011	470	011010111		
421	101001011	471	111010111		
422	011001011	472	000110111		
423	111001011	473	100110111		
424	000101011	474	010110111		
425	100101011	475	110110111		
426	010101011	476	001110111		
427	110101011	477	101110111		
428	001101011	478	011110111		
429	101101011	479	111110111		
430	011101011	480	000001111		
431	111101011	481	100001111		
432	000011011	482	010001111		
433	100011011	483	110001111		
434	010011011	484	001001111		
435	110011011	485	101001111		
436	001011011	486	011001111		
437	101011011	487	111001111		
438	011011011	488	000101111		
439	111011011	489	100101111		
440	000111011	490	010101111		
441	100111011	491	110101111		
442	010111011	492	001101111		
443	110111011	493	101101111		
444	001111011	494	011101111		
445	101111011	495	111101111		
446	011111011	496	000011111		
447	111111011	497	100011111		
448	000000111	498	010011111		
449	100000111	499	110011111		
450	010000111	500	001011111		

Appendix B: Using D series Dimmers with LED Tape

The CTI 5700 D series Dimmers have been optimized for use with LED tape. The D4 Dimmer can be used with three color (RGB) or four color (RGBW, RGBA) tape, or can be used to run up to four strips of single color tape. A D4 and D2 Dimmer can be combined to run two strips of three color tape.

How much Tape can I use with one D4 Dimmer?

LED tape load current varies by brand and style. Among 3/8" / 10mm wide tape styles with a single row of LEDs, single color tape is available that draws between 60mA to 99mA per foot, and RGB (three color) tape is available that draws between 124mA and 336mA per foot. LED products are constantly evolving, so be sure and check the tape you are using to confirm the load per foot/color.

There are currently some popular brands of RGB tape with 3 LED chips per 2",that are ~ 200mA per foot. This is the total load for all three colors, so each color is ~ 67mA per foot. You can drive up to 50 feet total of 200 mA tape with a D4, resulting in a total load of 10A and a per channel load of 3.33A. But remember that the ampacity of the tape can vary, so if you approach the Dimmer's maximum load limit, check that actual load carefully to confirm that you haven't exceeded the limit.

Note that there are limits to how long a single run of tape can be before tape performance is degraded, and this limit may not be equal to the maximum load the D4 Dimmer will drive. For very long runs of tape, you may need to cut the tape into pieces and feed them via separate home runs (see below).

For 200mA RGB tape, CTI recommends a maximum of 48 feet of tape be connected, and that you split this load into at least two 24 foot runs.
If you connect 48 feet of this 200mA per foot tape to a single D4 dimmer, resulting in a total load of 9.6A and a load per channel of 3.2A, you will have ~ 4 % head room.

Most manufacturers offer their longest tape in reels of ~ 16 feet/ 5 Meters, and some manufacturers recommend that single runs of tape should be limited to no more than the full length of the manufacturers reel.   With some brands you may still notice a difference in brightness from one end to the other if the full reel is connected as a single run.

Remember that that the power supply voltage must match the rated voltage of the load. The D4 Dimmer outputs the voltage it receives. If you are using 12V LED tape, use 12VDC power.

Connecting Single Color Tape

12 Volt single color tape is provided with a single +VDC circuit and a –VDC circuit.
1. Connect the +VDC circuit to one of the four + output terminals and connect the -VDC circuit to the accompanying –output terminal. Up to four runs of single color tape can be driven and dimmed by a D4 Dimmer.
2. Select the LED Curve for each dimmer channel used.
3. If you wish to change the PWM frequency, use RDM or the MOD switch to select the frequency desired.

D4 Dimmer connected to RGB Tape

Connecting Three Color (RGB) or Four Color (RGBW, RGBA) LED Tape

12 Volt three color LED tape is provided with a single +12VDC circuit and a –VDC circuit for each color.

1. Connect the +12VDC circuit to any one of the four + output terminals. The + terminals are bussed, and provide constant voltage. Note that some tape comes pre-wired with Black wire for the +12VDC circuit while other tape comes pre-wire with White wire.
2. Connect the R, G and B circuits each to one the four – output terminals (in the case of four color tape, connect the A or W circuit to the fourth – output terminal). The – terminals are the PWM dimmed outputs of the D4 Dimmer. Note that some tape comes with the R, G and B (and A or W) circuits in a different order than others.
3. Select the LED Curve for each dimmer channel used.
4. If you wish to change the PWM frequency, use RDM or the MOD switch to select the frequency desired.

Adapted from City Theatrical Tech Bulletin 1003: Working with LED Tape

The structure and electrical properties of LED Tape pose some important challenges to system designers and production electricians that must be met to insure good performance.

1. Locate Dimmers as close to the connection end of the tape as possible
2. Be aware of all run length limitations and meet them or devise de-rated alternatives
3. Use the heaviest wire possible for long Line and Load connection wiring
4. Check all terminations to confirm they are tight and correctly formed
5. Minimize wire transitions and terminations whenever possible

LED Tape typically consists of a strip of flexible printed circuit board material, backed with peel-and-stick adhesive and populated with multiple LEDs (each with individual current-limiting resistors) wired in parallel. Single color tape has one +VDC buss trace and one –VDC buss trace. RGB Tape has one –VDC buss for each LED color and one common +VDC buss.

The copper in these buss traces must be adequate to carry the current needed for the maximum allowable run length of the tape, while staying as small as possible. It is important to note that the copper in the LED tape also serves as the heat sink for the LEDs and their current limiting resistors.

If the maximum run length of the tape is exceeded, the copper busses will be overloaded and will heat up more than they are supposed to. In the long run, this will defeat the heat-sinking function and so fatigue the mounted components. In the short run, the heat will raise the impedance of the copper and contribute to operating problems. Heat stressed-copper can increase in impedance permanently. As the copper is heat-corrupted, the added impedance increases the heat generated and the copper is damaged further, which increases the heat, which increases the impedance, which increases the heat, which increases the impedance,…

Exceeding tape run length with single color LED tape can result in the following problems:
1. Excessive heat from the overloaded busses on the tape
2. Heat based component failure
3. Loss of output
4. Difference in brightness between the beginning and the end of the Tape
5. Permanent damage of the tape

Exceeding Tape run length with RGB LED tape can result in the following problems:
6. Excessive heat from the overloaded busses on the tape
7. Heat based component failure
8. Loss of output
9. Difference in brightness between the beginning and the end of the Tape
    a. Interaction between the R,G and B Channels, resulting in flickering or strobing at dimmed levels
10. Permanent damage of the tape

D4 SHoW DMX Neo® Dimmer Specifications

DMX Control Features
- SHoW DMX Neo® 2.4GHz Frequency Hopping Spread Spectrum (FHSS) Radio
    - Wirelessly receive and output a full Universe (512 slots) of DMX
    - Extremely low 7mS latency
    - RDM proxy and responder functions
    - Included 2dBi Omni-directional Flexible Cable Antenna
    - SHoW DMX Neo and SHoW DMX Neo Adaptive wireless broadcast modes (SHoW IDs 101-166, 201-204), compatible with SHoW DMX Neo Transceiver, SHoW DMX SHoW Baby Transceiver, SHoW DMX Vero Net Transceiver, SHoW DMX Vero Transceiver, MasterBlast, PDS-750 TRX, PDS-375 TRX
- 3P Screw Terminals for DMX Out

Other Features
- Four dimmer output channels
- Max output per dimmer channel 5A
- Max total output per device 10A
- Screw terminal connections for power input and dimmed output
- Each channel individually protected against over-current
- Each channel individually protected against over-temperature
- PWM resolution 16-bit
- Dimming Curves (individually assignable by channel)
    - Linear, 60Hz
    - ISL, 60Hz
    - LED, 250Hz, 500Hz, 2000Hz, 4000Hz (user selectable)
    - Non-Dim
- LED Smoothing
- Individual DMX addresses
- Fully RDM enabled

Mechanical
- NEMA 1 ABS enclosure

Electronic/ Functional Features
- Individual Bump Buttons
- DIP Switch, DMX Addressing (9POS)
- DIP Switch, SHoW ID addressing (8POS)
- DIP Switch, Curve Selection (8POS)
- DIP Switch, LED Curve PWM Frequency Selection (2POS)
- LED indicators:
    - Dimmer pilot lights (one for each channel)
    - Data (data present)
    - RF Signal Strength (4 LEDS) Low to High
    - Status

Compliance:
- RoHS Compliant

- CE Pending
- FCC Pending

CTI Part #s: 5742 D4 SHoW DMX Neo$^{®}$ Dimmer

Power: 7.5-30VDC 10A Max Power Input

Weight: 0.15 lbs/.08Kg

Dimensions: 2.25"/57mm W x3.5"/60mmH x 0.56"/14mmD (excluding antenna)