

# CITY THEATRICAL

NEW YORK • LONDON

## SHoW DMX SHoW Baby™ Wireless DMX Transceiver 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.

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## Radio Compliance Information

### 5792 SHoW DMX Neo™ Radio Transceiver

FCC ID: VU65792

IC ID: 7480A5792

#### 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

##### 5792 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.

**5792 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	SMA plug reverse polarity via provided Antenna Cable	5dBi
Centurion	WCP2400-MMCX4	Omni whip	MMCX jack on 4" coax pigtail	2.5dBi
Maxrad	MP24008XFPT	Panel	SMA plug reverse polarity via provided Antenna Cable	8dBi
Maxrad	MYP24010PT	Yagi	SMA plug reverse polarity via provided Antenna Cable	10dBi
Maxrad	MYP24014PT	Yagi	SMA plug reverse polarity via provided Antenna Cable	14dBi

**5792 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	SMA plug reverse polarity via provided Antenna Cable	5dBi
Centurion	WCP2400-MMCX4	Omni whip	MMCX jack on 4" coax pigtail	2.5dBi

**CE Mark Conformity**

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 tyypinen 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.

**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 complètement libres d'utilisation en France (en utilisation intérieur). Pour ce qui est des autres canaux, ils peuvent être soumis à autorisation selon le département. L'utilisation en extérieur est soumise 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.

5792 SHoW DMX Radio CE Declaration of Conformity



**EC Certificate of Conformity**

**Products covered by this Certificate**

SHoW DMX Neo™

5792 Radio Module

**Standards Applied**

EN 301-489-1 V1.8.1 (2008-04)  
EN 301 489-17 V2.1.1 (2009-05)  
ETSI EN 300 328 v1.7.1 (2006-10)

Product Conforms to CE Marking Directive 93/68/EEC

Date of Issue: August 15, 2011

Year CE Marking First Affixed: 2011

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## System Compliance Information



The 5702 SHoW DMX SHoW Baby Transceiver is CE Certified

### Standards Applied:

BS EN 60950-1:2002 incorporating Corrigendum No. 1 and Amendment No. 1  
EN 55203-1: 1996  
EN 55203-2: 1996  
EN 301 489-1 V1.4.1  
EN 301 489-3 V1.4.1

Products Conform to CE Marking Directive 93/68/EEC  
All SHoW DMX models are RoHS compliant

### Safety Notices

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 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.

SHoW DMX equipment is intended for indoor use only unless specified for outdoor use.

Keep the equipment dry! Do not operate the equipment if it gets wet!

Do not operate in excessive heat/direct sunlight.

Be sure installation provides adequate ventilation.

There are no user-serviceable parts inside! Refer to qualified service personnel!

**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 SHoW DMX SHoW Baby™ Wireless DMX/RDM Transceiver.

The SHoW DMX SHoW Baby represents a breakthrough in plug-and-play wireless DMX and RDM transmission, and can be used either as a wireless DMX transmitter or receiver. All you need now to set up a SHoW DMX wireless DMX system is two SHoW DMX SHoW Babies and two minutes!

The SHoW DMX SHoW Baby features include:

- SHoW DMX Neo™ 2.4GHz Frequency Hopping Spread Spectrum (FHSS) Radio
- Wirelessly broadcast and receive a full Universe (512 slots) of DMX
- Robust wireless DMX512 and RDM data transmission
- Extremely low 7mS max latency
- RDM proxy and responder functions
- Instant plug-and-play configuration: *For a Transmitter, connect DMX IN, for a Receiver, don't!*
- 72mW ETSI broadcast power (with 5dBi Antenna)
- Included Pipe Mount bracket for installation with C-Clamps or similar hanging hardware
- Included CL2 Power Supply
- Included 2dBi Omni-directional Antenna
- Neutrik® 5P XLR Connectors for DMX IN and DMX OUT

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.

## SHoW DMX SHoW Baby Neo Settings

The SHoW DMX SHoW Baby uses the 5792 SHoW DMX Neo Radio Module. It is permanently configured with SHoW ID 201 for Adaptive Spread Spectrum Frequency Hopping and Neo Low Latency broadcast mode. Using RDM, you can adjust the broadcast power, edit the RDM Device Label, and enable or disable RDM traffic. No other settings are adjustable.

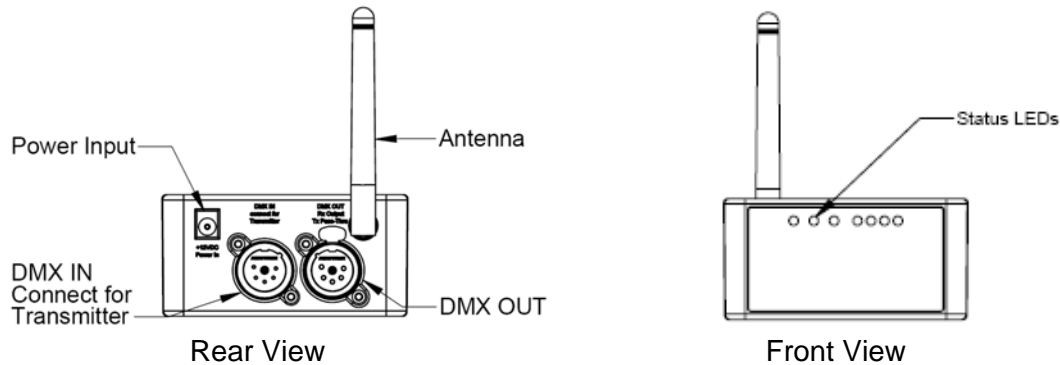
## SHoW DMX SHoW Baby Antennas

The SHoW DMX SHoW Baby is shipped with a 2dBi Omni directional antenna. Any of the approved antennas listed above may be used with the SHoW DMX SHoW Baby (please note the special installation requirements for use with the CTI # 5636 14 dBi Yagi Antenna).

ETSI power settings for all 5792 SHoW DMX Neo Radio module equipped products, including the SHoW DMX SHoW Baby, 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.



## DMX512 Setup and Operation



A SHoW DMX SHoW Baby system will normal consist of at least two SHoW Baby units.

### Transmitter Setup

You can use one SHoW DMX SHoW Baby per system as a transmitter.

1. Install the SHoW Baby you will use for a transmitter in a convenient location where you can reach it with the DMX cable from your console or controller. For best results, locate the unit higher in the air; 8 feet up is better than 5, and 20 feet up is better than 8. Consider where you will put your SHoW DMX SHoW Baby receivers and place the SHoW DMX SHoW Baby transmitter where its antenna will be within line of sight with the receivers (if possible).
2. Install the provided antenna and point it straight up in the air.
3. Connect the provided 12V DC Power Supply to the unit, and connect to mains power.
4. Connect the DMX cable from the console/controller to the DMX IN. The SHoW DMX SHoW Baby will be configured as a transmitter and the **Tx** LED will light. The DMX IN will be automatically terminated, and the DMX OUT will be available as a DMX pass-thru. If you also connect a cable to the DMX OUT the termination is lifted.
5. As soon as you begin sending DMX from your console, the SHoW DMX SHoW Baby will begin broadcasting and the **Data** LED will light.

### Receiver Setup

You will need at least one SHoW DMX SHoW Baby to use as a receiver.

6. Install the SHoW DMX SHoW Baby you will use for a receiver in a convenient location where you can reach it with a DMX cable to the device (or devices) it will be providing DMX for. As with the SHoW DMX SHoW Baby transmitter, locate the unit higher in the air for best results, and try to place your SHoW DMX SHoW Baby receiver where its antenna will be within line of sight with the transmitter.

7. Install the provided antenna and point it straight up in the air.
8. Connect the provided 12V DC Power Supply to the unit, and connect to mains power. The SHoW DMX SHoW Baby will be configured as a receiver and the **Rx** LED will light
9. Connect a DMX cable from the SHoW DMX SHoW Baby DMX OUT to the first DMX device you want to provide DMX to. You can then continue to add up to 32 more DMX devices to the chain as with any DMX data stream, and like any other DMX system, be sure the last connected device is properly terminated.
10. As soon as you begin broadcasting from the SHoW DMX SHoW Baby set up as your transmitter, the data will be received by the SHoW DMX SHoW Baby(s) set up as receiver(s) and the transmitted DMX will be output from the receiver unit's DMX OUT. The received signal strength will be displayed on the four **LO – RF Signal – HI** LEDs. This four LED “meter” will light to show you your signal strength; a good wireless signal is three or more LEDs, and weaker signal is two or less.

You can set up any number of additional SHoW DMX SHoW Baby units as receivers.

## 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*.

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

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

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

SHoW DMX SHoW Baby supports the following read-only PIDs:

```

PROXIED_DEVICE_COUNT
PROXIED_DEVICES_ENHANCED
SUPPORTED_PARAMETERS
PARAMETER_DESCRIPTION
PRODUCT_DETAIL_ID_LIST
DEVICE_MODEL_DESCRIPTION
MANUFACTURER_LABEL
FACTORY_DEFAULTS
SOFTWARE_VERSION_LABEL
SENSOR_DEFINITION
SENSOR_VALUE, OUTPUT_POWER

```

SHoW DMX SHoW Baby supports the following editable PIDS:

```

DEVICE_LABEL (editable)

```

RDM\_TRAFFIC\_ENABLE (editable, 01 = enable, 00 = disable)

OUTPUT\_POWER (editable, 00=1mW, 01=14mW, 02=28mW, 03=72mW)

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

Note that DMX transmission fidelity may be slightly reduced when RDM Traffic is enabled.

### Installing the Mounting Bracket

The SHoW DMX SHoW Baby is provided with a Mounting Bracket for use with ½" theatrical mounting hardware like a C-Clamp.

Mount the Bracket on the SHoW DMX SHoW Baby using the 3 provided 8-16 x .250 Flat Head Torx drive screws. These are special screws for use with plastic, and need a T15 Torx driver.

Do not over-tighten the screws!

