CITY THEATRICAL
NEW YORK • LONDON

PDS-750 TRX
Power/Data Supply
User's Manual

Rev 1.0

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

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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 CTI PDS-750 TRX 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 CTI PDS-750 TRX is intended for indoor use only.

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. Some system components can produce significant heat and must be properly installed to allow proper cooling and assure user safety. All sides of the equipment must be clear of obstruction and allow free airflow.

The socket-outlet shall be installed near the equipment and shall be easily accessible.

WARNING! Only horizontal mounting and operation, exclusively

Maximum operating temperature: +0 °C to +40 °C

Output power of 24 V DC: 20 A max

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

Aucune maintenance ne doit être effectuée pour les pièces situées dans l'appareil. Les réparations et la maintenance doivent être executes uniquement par une personne qualifiée.

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 selecting City Theatrical's PDS-750 TRX. 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.

The PDS-750 TRX is a power/data supply (PDS) for CKDMX fixtures; it can be used with a controller or in stand-alone mode to power and control up to 12 50W CKDMX fixtures, and offers control, configuration, and feedback options that have never been available before in a single unit.

Universal fixture support and flexible patching: You can use 2 color (iW Blast 12 TR), 3 color (ColorBlast 12 TR), and 5 color (ColorBlast 12 TRX) fixtures, you can use them in either 8 bit or 16 bit versions, and you can use them in any combination you choose. You can configure each of the 12 output ports differently, and you can address each port to a unique starting DMX address, or assign all the ports to a common starting DMX address. Use the PDS-750 TRX with any combination of 2, 3, or 5 color fixtures in either 8 or 16 bit mode and patch them without any wasted DMX slots.

Accepts all Industry Standard Control Protocols: You can control your PDS-750 TRX system (PDS and fixtures) with conventional wired DMX and RDM, Wireless DMX and RDM using the built-in SHoW DMX® receiver, Streaming ACN, Art-Net, or Ki Net, or with the built in MasterBlast™ Stand Alone routines. Whatever control data you use is output from the unit's DMX512 output

Built-In 3 Port Managed Ethernet Switch: When using one of the Ethernet control protocols, you can assign the PDS-750 TRX system (PDS and fixtures) to one or two of the virtual DMX512 universes and assign a different virtual DMX512 universe to the DMX output.

Built-In SHoW DMX Receiver: When controlling the PDS-750 TRX with SHoW DMX wireless DMX, the DMX data is output from the unit's DMX DMX512 Output. See *Appendix E: SHoW DMX Neo Compatibility* for SHoW DMX Neo compatibility.

Powerful new miniZapi features: You can use the enhanced built-in miniZapi to configure each of the connected CKDMX fixtures.

One unit for touring or installation: You can use the new convertible mounting ears to pipe mount the unit, or re-position them to rack mount the unit.

Universal Compliance: Each PDS-750 TRX is ETL and cETL Listed, CE certified and FCC part 15B compliant.

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.

PDS-750 TRX Features and Connections

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Convertible Mounting Ear — Ventilation Grille, do not block — User Interface
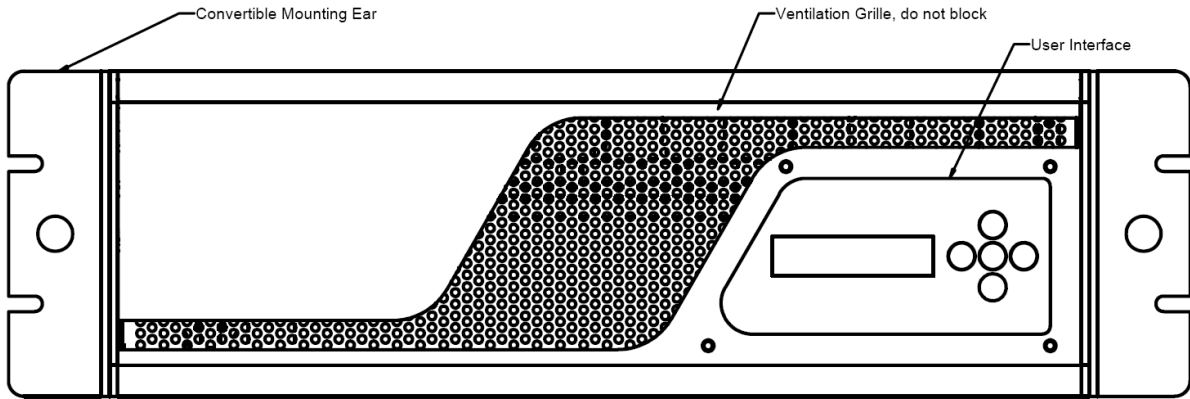
Figure 1, PDS-750 TRX, Front View

Front View

On the front of the PDS-750 TRX you will find the User Interface and the Ventilation Grille.
The User Interface incorporates 5 pushbuttons and a 2x16 Character LCD Screen.
The Ventilation Grille is an active part of the cooling system and should be kept clear and free of obstruction, as should the fan assembly on the right side of the unit.

USB Port — Ethernet Port Neutrik EtherCON — CKDMX Port Neutrik 4PXLRF — SHoW DMX Antenna

DMX-512 Output Neutrik 5PXLRF — Mains Fuse — Mains Power Inlet Neutrik PowerCON

DMX-512 Input Neutrik 5PXLRM

Figure 2, PDS-750 TRX Rear View

Connections

All of the input, output and power connections are located on the back of the PDS-750 TRX, including:
Mains Power, powerCON with separate fuse (each unit is provided with a powerCON to NEMA 5-15P power cable, see below)
DMX-512 Input, 5PXLRM
DMX-512 Output, 5PXLRF

USB Port (for firmware changes and upgrades)
2 Ethernet Ports, RJ 45 compatible etherCON
12 CKDMX Ports, 4PXLRF

In addition, the SHoW DMX antenna connection with the included (removable) 5 dBi omni antenna is also located on the back of the unit.

Mains Power

The PDS-750 TRX is provided with a universal input power supply and will operate on any mains power source 100-240 VAC 50/60 Hz.
Each PDS-750 TRX is provided with a powerCON to NEMA 5-15P power cable. For use outside of North America, the NEMA 5-15P can be removed and replaced with the correct local connector. The power cord wire insulation color code is

Mains Hot	Brown
Mains Neutral	Blue
Safety Earth Ground	Green/Yellow

Color Kinetics CKDMX Output Pinout

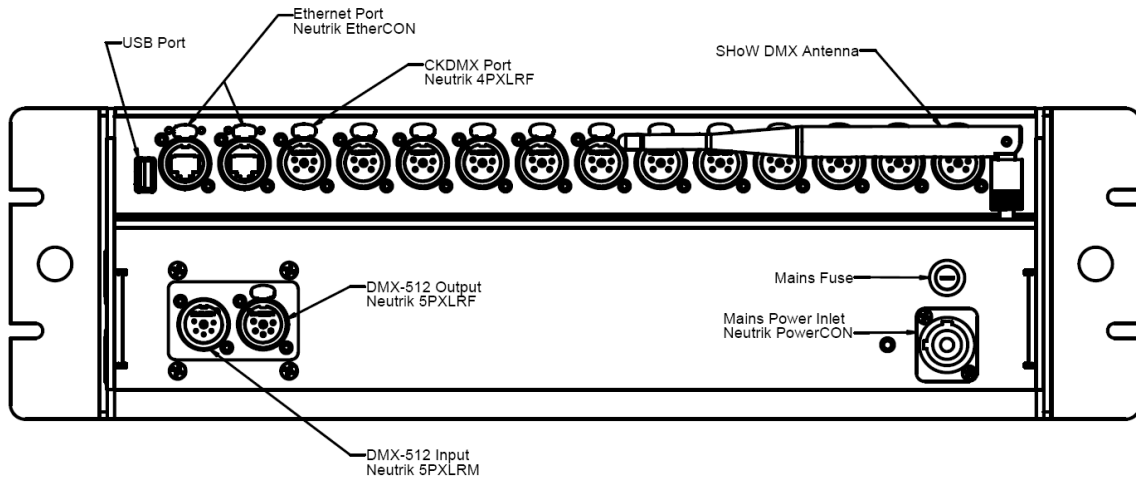The PDS-750 TRX CKDMX XLR 4P Output pinout is as follows:

PIN #	Signal	CK Cable Wire Color
Pin 1	+24VDC	Red
Pin 2	(n/c)	
Pin 3	Data	White
Pin 4	DC Common	Black

This pinout matches all Philips Color Kinetics ColorBlast 12 TRX, ColorBlast 12 TR, and iW Blast 12 TR fixtures and all other CTI PDS units, and is the industry standard.

Figure 3, Convertible Mounting Ears

Convertible Mounting Ears

The PDS-750 TRX comes with two removable mounting ears. These mounting ears are installed using either set of 3x10-32 screws on the front edge or the top edge of each side of the PDS-750 TRX. When installed vertically on the front edge of the unit, the PDS-750 TRX is rack

mountable in a standard 19" x 3U rack mount space (*remove the four rubber feet* by removing the mounting screws before rack mounting).

When installed horizontally on the top edge of the unit, the mounting ears double as mounting points for ½" hardware and can be used with C-Clamps or other suitable hardware to hang the unit on pipe or truss.   There is a safety cable loop built into the right side of the unit for use with a user-provided safety cable when hanging the unit.

OPERATING THE PDS-750 TRX
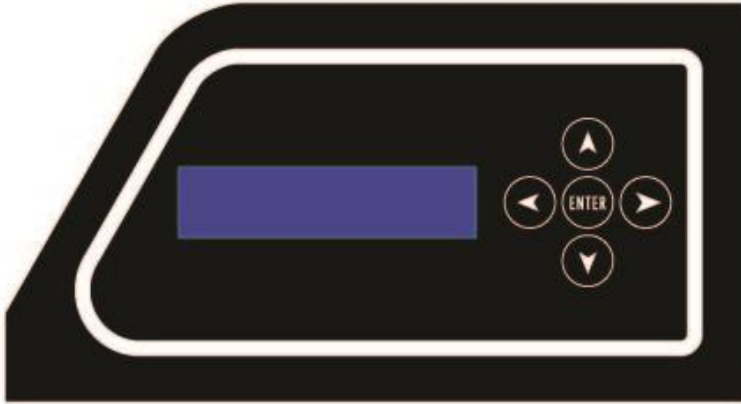
Figure 4, PDS-750 TRX User Interface

User Interface
The PDS-750 TRX is provided with a button pad for user control and an LCD screen that displays menu settings, configuration options, performance data, and any other text or graphics that relate to unit function.

Press the Enter (center) button to access the menus, and press the Up or Down buttons to move through the menus. When you reach a menu that you want to work in, simply press Enter to begin editing. Press Enter again to save your changes. To cancel an edit, press and hold the Left button.

Configuring the PDS-750 TRX
Before you can use the PDS-750 TRX, you will need to configure it by selecting the input options and output options you wish to use. You can perform a basic configuration quickly using the Setup Wizard, or fine tune any input or output configuration settings by going directly to the menu for that option.

Making Input and Output Connections

Power
The unit will work with 100-240VAC 50-60Hz mains power sources, and is provided with a powerCON to NEMA 5-15P plug for connection to US household style outlets.   For use with other types of outlets, replace the plug with a suitable connector.

CKDMX Ports
Connect CKDMX fixtures in any desired arrangement; you can connect all of one type of fixture, or mix fixtures in any combination. If you combine different types of CKDMX fixtures, you will be able to configure each output port to match the fixture using the Port Setup Menu described below.
CTI offers the 6505 Terminal Block Adapter for use with the PDS-750 TRX if screw terminal connection is desired for applications such as permanent installation

DMX512 Connections
Connect a standard 5P XLR DMX Cable to the 5P XLRM DMX input. The 5P XLRF Output will function as a standard hard-wired DMX pass-thru and is auto-terminated when no pass-thru cable is connected.

Ethernet Connections
Connect the Ethernet source to either EtherCON RJ45 Compatible Ethernet port connector. The other EtherCON will function as a pass-thru port as long as the PDS-750 TRX is operating in Ethernet Input mode. If power to the unit is lost this Ethernet pass-thru will not function.

SHoW DMX Operation
Confirm the Antenna is installed and extended. Configure the SHoW ID to match the SHoW ID setting of the SHoW DMX Transmitter (sold separately) being used. See *Appendix A: SHoW DMX* Configuration Options on page 19, and the *SHoW DMX Users Manual* for details. For SHOW DMX Neo compatibility see *Appendix E: SHoW DMX Neo Compatibility.*

USB A Port
This port is used for firmware installation and upgrades only. Firmware updates are posted on the City Theatrical, Inc. website www.citytheatrical.com

To install a firmware update:
Download the new firmware file from the CTI Website
Place file in root directory of a FAT (16 or 32) formatted USB memory stick.
Plug stick into USB jack
Browse to "Misc->Firmware->Update"
Wait for unit to reboot with new firmware
Once complete, remove USB stick

Some USB memory devices do not meet the USB Standard, and may not work reliably with the PDS-750 TRX. If you have a problem, please contact City Theatrical for help.

The Menus

The PDS-750 TRX will power up in the configuration it was last set to. On power up, the unit will be in the Main Menu and the display will show:

PDS-750 TRX → (main menu)
[status] (status messages will vary with the input control method selected)
 (→) indicates that there is more information available by pressing the Right button.

The Setup Wizard

The Setup Wizard will guide you to configure basic setups for Wired DMX control, Internal Scenes Wireless DMX control, Ethernet control, or Internal Scenes. To use the Setup Wizard, navigate to the Setup Wizard menu and press ENTER to Start. Continue to press ENTER to select choices and to move through the Wizard.

Input Setup> Sets the input and control protocol to be used. Select DMX512-A, Internal Scenes, Art-Net, Streaming ACN or SHoW DMX.

Personality> Sets a fixture personality for all 12 of the CKDMX ports. Select RGB3 16-bit, RGB3 8-bit, iW 8-bit, RGBAW 16-bit, RGBAW 8-bit RGB5 16-bit, or RGB5 8-bit. Note, fixtures are automatically zapi-ed when PERSONALITY is selected to assure correct configuration

Base Address> Sets the unit's base DMX address and addresses the CKDMX ports sequentially. Select any DMX address from 1 -512

Universe (when Ethernet is selected)

SHoW ID (When SHoW DMX is selected) Sets the SHoW ID (hopping pattern and bandwidth *setting) for use in a SHoW DMX wireless DMX system.*

A *Quick Start Setup* Label is provided on the top of the unit:

Figure 5: Quick Start Setup Label

For more advanced and detailed configuration, proceed to the menu for the feature you wish to configure.

Input Setup

Use this menu to configure the PDS-750 TRX to accept control data from any one of the many supported control protocol options, and to set the various configuration options for each of the different protocols supported. This is a dynamic menu range; the options vary with the protocol selected, so options are only presented when they are pertinent to the selected protocol.

When using one of the Ethernet protocols, the PDS-750 TRX's outputs can be assigned to any supported Universe while the DMX output is assigned to a underlined different supported Universe.

Control Method

- E1.11 DMX-512 *(selects DMX)*

- Internal Scenes *(selects Internal Scenes)*

- ArtNet *(selects Art-Net and enables the Art-Net configuration options below)*
    - Universe
        - 0-0 thru f-f *(select from 256 Universes as 16 subnets, each with 16 Universes)*
    - Network Settings *(configure Art-Net network settings)*
        - IP Address Mode
            - Manual
            - Auto
        - IP Address
        - Subnet Address
        - Gateway Address
        - MAC Address
    - Universe Format
        - Hexadecimal *(displays Universes according to standard Art-Net convention)*
        - PRG Alpha *(displays universes according to PRG's Alpha-numeric convention*
        - Decimal *(displays Universes with decimal labels 1-256)*
    - PRG Merge *(by default, multiple sources for the same Universe are HTP merged)*
        - Auto (Art-Net Default)
        - LTP
        - 1 Way
        - 2 Way
        - 3 Way
        - 4 Way

- E1.31 sACN *(selects streaming DMX over ACN and enables the sACN configuration options below)*
    - Universe
        - 1-63999 *(select from 64,000 Universes)*
    - Network Settings *(configure sACN network settings)*
        - IP Address Mode
            - Manual
            - Auto
        - IP Address
        - Subnet Address
        - Gateway Address
        - MAC Address
    (by default, multiple sources for the same Universe are HTP merged, max number of sources is two)

- SHoW DMX *(selects SHoW DMX wireless DMX and enables the SHoW DMX configuration options, see SHoW DMX Configuration Options, page 19 and Appendix E: SHoW DMX Neo Compatibility)*
  - o SHoW ID *(select SHoW ID)*
    - 101-166, 201-204
  - o SHoW Power *(select SHoW DMX broadcast power for RDM responses)*
    - Neo: 1mW- 72mW (ETSI)

Port Setup

This menu is used to configure the CKDMX Ports for the various fixture types supported. Each CKDMX Port can be individually configured, or all 12 Ports can be set to the same configuration.
Start Addressing (select a starting address for the whole unit with Base Address, or set individual starting addresses for each Port with Port 1 Address through Port 12 Address)

- Base Address
  - 1-512
- Port 1 Address
  - 1-512
- Port 2 Address
  - 1-512
    -
    -
    -
- Port 12 Address
  - 1-512

Source Selection
(Select Universe in Ethernet control methods; select a source for the whole unit with All Sources, or set individual Sources for each Port with Port 1 Source through Port 12 Source)
All Sources

- Port 1 Source
- Port 2 Source,
  -
  -
  -
- Port 12 Source

Personality

(select a common fixture personality for the whole unit with All Personality, or set individual personalities for each Port with Port 1 Personality through Port 12 Personality)

- All Personality
- Port 1 Personality
- Port 2 Personality
  -
  -
  -
- Port 12 Personality

Fixture Personalities:
- PASS-THRU

- iW 8-bit
- RGBAW 16-bit
- RGBAW 8-bit
- RGB5 16-bit
- RGB5 8-bit
- RGB3 16-bit
- RGB3 8-bit

miniZapi

The min-zapi menu allows individual configuration of connected CKDMX fixtures, including resetting the fixture to the default CKDMX "Light 1" (starting DMX address 001) and selection of 8 or 16 bit operation. Connected fixtures may be zapi-ed together using **All mZapi** (all miniZapi) or may be zapi-ed individually using individual **Port mZapi** (Port miniZapi). The zapi configuration options for **All mZapi** and individual **Port mZapi** are the same and are listed below:

- **All mZapi**
    or
- **Port 1-12 mZapi**
    - Set Address to 1
    - Set DMX Mode
    - Set LED D4 – D1
    - Set LED Fast
    - Set Contrl RGB5
    - Set Contrl RGB3
    - Set Contrl RGBAW
    - Set Tung. Curve
    - Set Normal Curve
    - Set Linear Curve
    - Set 8 bit mode
    - Set 16 bit mode

Scene Setup

In the Scene Setup menu you can assign any one of the stand-alone routines to each of 6 Scenes and then configure the unit to play those Scenes in the order and times you select using the Fade Time and Follow Time settings. Fade Time sets the fade time within the routine assigned to the Scene, e.g. the time for a cross fade between colors in Color Wash. Follow Time sets the time the Scene will play before the unit moves to the next assigned Scene. An internal Grand Master setting is also applied when running the PDS-750 TRX in this mode.   Up to 6 Scenes can be configured and any unused Scenes can be disabled. Use the > Menu settings to set the Grandmaster level, fade time and follow time for each Scene. Select **Internal Scenes** in the Input Menu to edit Scenes live and enable playback.

Scene1: >
- Disabled
- Fixed Color
- Random Fade
- Random Color
- Colorwave 6Lgt
- Colorwave 12Lgt
- Colorwave 18Lgt

- Cross Fade
- Color Wash

P> menu settings:
> Grandmaster:
> - 000 – 100%

> Fade Time:
> - .2 Sec. – 2 Hours

> Follow Time:
> - .1 Sec – 2 Hours or 0 (infinite)

> Color 1/Fixed:
> - R:00-FF G:00-FF B:00-FF A:00-FF W:00-FF *(editing either Fixed or Color 1 sets RGB levels for both routines)*

> Color 2:
> - R:00-FF G:00-FF B:00-FF

Scene 2: > (as above)
Scene 3: > (as above)
Scene 4: > (as above)
Scene 5: > (as above)
Scene 6: > (as above)

RDM Setup
Proxy Enable
- Enabled
- Disabled

Device Label: ><
- [user entered 32 characters]

Unique ID: [factory set]

Misc. Setup
Data Hold T-Out
- Infinite
- [Set Time] 0h:mm:ss.s *up to 1hr 49min 12.5sec*

Panel Lockout:
- 5-240 seconds
- Disabled

To clear Panel Lockout, press and hold the Right and Left Buttons at the same time

Backlight T-out:
- Always on
- Always off

- 1-240 Seconds

CK Quiet Mode:
- Off
- On

In CK Quiet Mode, CKDMX ports stop data transmission between slot level changes. This helps suppress inductive noise based problems such as ghosting in systems with extreme cable length to fixtures

Firmware [firmware version]

Restore Default?
- Are you sure? [working]

Internal Scenes / Stand-Alone Routines

The PDS-750 TRX contains eight stand-alone routines, which can be assigned to the six preset **Internal Scenes**. In the stand-alone routines, the PDS-750 TRX outputs the selected routine as a DMX signal from its 5PXLR wired DMX output port.

You may setup Internal Scenes from the **Setup Wizard** or follow the following procedure to set up Internal Scenes directly using the **Scene Setup** Menu:

To select Stand-Alone Routines (Not using Setup Wizard):
From the Top Menu, push the Enter Button to access the various Setup Menu choices, use the Down Button to scroll to **Advanced Setup** and select (Enter Button)
Under Control Method: select **Internal Scenes**
Use up/down arrows to navigate to **Port Setup** and select (Enter Button) use the Down Button to scroll to **Personality** and select (Enter Button)
Under All Personality: select **RGBAW 8-bit**
Back up to the Setup Menu and scroll to **Scene Setup** to assign Stand-Alone Routines to Scenes (1-6) and configure the Routines selected. Set unused Scenes to Disabled.

Make sure your LED fixtures are either RGB only fixtures (TR series) or set for RGBAW 8-bit (TRX series).

Fixed Color
This show routine holds a single user selectable color. The Color setting is displayed as Red, Green, Blue, Amber and White (RGBAW) levels in hexadecimal. Press the Enter button to edit the colors. A blinking cursor will appear under the first character in the R level. Use the Up and Down button to adjust. Use the Left and Right buttons to move to the other character fields. You can monitor the level by watching a connected ColorBlast as the output is updated while you adjust these levels. When you have completed setting the color push Enter to record your setting.

Cross Fade

This show routine executes a continuous cross fade between two RGB colors. The adjustable parameters are the fade rate and color selection. To adjust the fade rate, go to the Color Fade routine and press Enter. A blinking cursor will appear under the fade time. Adjust the fade time by pressing the Up and Down buttons. Fade time is adjustable between .25 Seconds and 2 hours. To select the Colors for the cross fade, go to the Color Fade routine and press the Right button. The display will change to show the current Color 1 or Color 2 setting. The Color setting is displayed as Red Green and Blue (RGB) levels in hexadecimal. Press the Enter button to edit the colors. A blinking cursor will appear under the first character in the R level. Use the Up and Down button to adjust. Use the Left and Right buttons to move to the other character fields. You can monitor the level by watching a connected ColorBlast, as the output is updated while you adjust these levels.   When you have completed setting one color push Enter to record your setting and use the Up and Down buttons to go to the other color. PDS-750 TRX will continually broadcast this 3 color routine via its DMX512 Output configured as RGBAW 8-bit personality.

Color Wash

This show routine executes a continuous cross fade between colors. The adjustable parameter is the fade rate. To adjust the fade rate, go to the Color Wash routine and press Enter. A blinking cursor will appear under the fade time. Adjust the fade time by pressing the Up and Down buttons. Fade time is adjustable between .2 Seconds and 2 hours. PDS-750 TRX will continually broadcast this 3 color routine via its DMX512 Output configured as RGBAW 8-bit personality.

Color Wave 6 Light

This show routine executes as a sequential color spectrum cross fade between six lights, where the six lights are sequentially addressed (DMX1,2,3; 4,5,6; 7,8,9; etc.). The effect is of a color spectrum or rainbow moving around the sequentially addressed fixtures. The adjustable parameter is the fade rate. To adjust the fade rate, go to the Color Wave 6 Lgt routine and press Enter. A blinking cursor will appear under the fade time. Adjust the fade time by pressing the Up and Down buttons. Fade time is adjustable between .2 Seconds and 2 hours. PDS-750 TRX will continually broadcast this 3 color routine via its DMX512 Output configured as RGBAW 8-bit personality.

Color Wave 12 Light

This show routine executes as a sequential color spectrum cross fade between 12 lights, where the 12 lights are sequentially addressed (DMX1,2,3; 4,5,6; 7,8,9; etc.). The effect is the same as Color Wave 6 Light except the Color Wave effect is smoother as it moves across more fixtures. The adjustable parameter is the fade rate. To adjust the fade rate, go to the Color Wave 12 Lgt routine and press Enter. A blinking cursor will appear under the fade time. Adjust the fade time by pressing the Up and Down buttons. Fade time is adjustable between .2 Seconds and 2 hours. PDS-750 TRX will continually broadcast this 3 color routine via its DMX512 Output configured as RGBAW 8-bit personality.

Color Wave 18 Light

This show routine executes as a sequential color spectrum cross fade between 18 lights, where the 18 lights are sequentially addressed (DMX1,2,3; 4,5,6; 7,8,9; etc.). The effect is the same as Color Wave 6 Light and 12 Light except the Color Wave effect is even smoother than in the 6 or 12 Light versions. The adjustable parameter is the fade rate. To adjust the fade rate, go to the Color Wave 18 Lgt routine and press Enter. A blinking cursor will appear under the fade time. Adjust the fade time by pressing the Up and Down buttons. Fade time is adjustable between .2 Seconds and 2 hours. PDS-750 TRX will continually broadcast this 3 color routine via its

DMX512 Output configured as RGBAW 8-bit personality.

Random Color
This show routine executes changes ('bumps") between randomly selected colors. The adjustable parameter is the change rate. To adjust the change rate, go to the Random Color routine and press Enter. A blinking cursor will appear under the change time. Adjust the time by pressing the Up and Down buttons. Change time is adjustable between .2 Seconds and 2 hours. PDS-750 TRX will continually broadcast this 3 color routine via its DMX512 Output configured as RGBAW 8-bit personality.

Random Fade
This show routine is similar to the color wash routine except that color selection is random.   The adjustable parameter is the fade rate. To adjust the fade rate, go to the Random Color routine and press Enter. A blinking cursor will appear under the fade time. Adjust the fade time by pressing the Up and Down buttons. Fade time is adjustable between .2 Seconds and 2 hours. PDS-750 TRX will continually broadcast this 3 color routine via its DMX512 Output configured as RGBAW 8-bit personality.

When playing Scenes from the Main Menu, press Up/Down to change scenes. If a follow time for a Scene is set to other than 0 sec., the Scene will automatically change to the next Scene at the end of the follow time. If the current Scene is # 6, the next Scene will be # 1.

Appendix A: SHoW DMX Configuration Options

SHoW ID

The SHoW ID Setting configures the SHoW DMX Radio parameters, including hopping pattern selection and full or limited bandwidth broadcast modes. <u>All SHoW DMX equipment in a given system must share the same SHoW ID in order to communicate</u>.   SHoW ID 201 is the default setting for all SHoW DMX equipment.

There are 2 types of modes that the device can function in: Neo and Neo Adaptive.

SHoW DMX Neo Compatibility

Please see *Appendix E: SHoW DMX Neo Compatibility* for more information on compatibility of SHoW DMX Neo SHoW IDs (IDs > 66) with older power supplies.

Neo Mode Operation

In Neo Mode, the SHoW DMX Neo system uses a new 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 uses 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.

Table 1: Neo SHoW ID Tables

SHoW ID	Mode	Hopping Pattern	Bandwidth
101	Neo	1	Full
102	Neo	2	Full
103	Neo	3	Full
104	Neo	4	Full
105	Neo	5	Full
106	Neo	6	Full
107	Neo	7	Full
108	Neo	8	Full
109	Neo	9	Full
110	Neo	10	Full
111	Neo	11	Full
112	Neo	12	Full
113	Neo	13	Full
114	Neo	14	Full
115	Neo	15	Full
116	Neo	16	Full

SHoW ID	Mode	Hopping Pattern	Bandwidth
117	Neo	1	Limited Low, Wi-Fi 1-6
118	Neo	2	Limited Low, Wi-Fi 1-6
119	Neo	3	Limited Low, Wi-Fi 1-6
120	Neo	4	Limited Low, Wi-Fi 1-6
121	Neo	5	Limited Low, Wi-Fi 1-6
122	Neo	6	Limited Low, Wi-Fi 1-6
123	Neo	7	Limited Low, Wi-Fi 1-6
124	Neo	8	Limited Low, Wi-Fi 1-6
125	Neo	9	Limited Low, Wi-Fi 1-6
126	Neo	10	Limited Low, Wi-Fi 1-6
127	Neo	11	Limited Low, Wi-Fi 1-6
128	Neo	12	Limited Low, Wi-Fi 1-6
129	Neo	13	Limited Low, Wi-Fi 1-6
130	Neo	14	Limited Low, Wi-Fi 1-6
131	Neo	15	Limited Low, Wi-Fi 1-6
132	Neo	16	Limited Low, Wi-Fi 1-6

SHoW ID	Mode	Hopping Pattern	Bandwidth
133	Neo	1	Limited Mid, Wi-Fi 5-9
134	Neo	2	Limited Mid, Wi-Fi 5-9
135	Neo	3	Limited Mid, Wi-Fi 5-9
136	Neo	4	Limited Mid, Wi-Fi 5-9
137	Neo	5	Limited Mid, Wi-Fi 5-9
138	Neo	6	Limited Mid, Wi-Fi 5-9
139	Neo	7	Limited Mid, Wi-Fi 5-9
140	Neo	8	Limited Mid, Wi-Fi 5-9
141	Neo	9	Limited Mid, Wi-Fi 5-9
142	Neo	10	Limited Mid, Wi-Fi 5-9
143	Neo	11	Limited Mid, Wi-Fi 5-9
144	Neo	12	Limited Mid, Wi-Fi 5-9
145	Neo	13	Limited Mid, Wi-Fi 5-9
146	Neo	14	Limited Mid, Wi-Fi 5-9
147	Neo	15	Limited Mid, Wi-Fi 5-9
148	Neo	16	Limited Mid, Wi-Fi 5-9

SHoW ID	Mode	Hopping Pattern	Bandwidth

149	Neo	1	Limited High, Wi-Fi 7-11
150	Neo	2	Limited High, Wi-Fi 7-11
151	Neo	3	Limited High, Wi-Fi 7-11
152	Neo	4	Limited High, Wi-Fi 7-11
153	Neo	5	Limited High, Wi-Fi 7-11
154	Neo	6	Limited High, Wi-Fi 7-11
155	Neo	7	Limited High, Wi-Fi 7-11
156	Neo	8	Limited High, Wi-Fi 7-11
157	Neo	9	Limited High, Wi-Fi 7-11
158	Neo	10	Limited High, Wi-Fi 7-11
159	Neo	11	Limited High, Wi-Fi 7-11
160	Neo	12	Limited High, Wi-Fi 7-11
161	Neo	13	Limited High, Wi-Fi 7-11
162	Neo	14	Limited High, Wi-Fi 7-11
163	Neo	15	Limited High, Wi-Fi 7-11
164	Neo	16	Limited High, Wi-Fi 7-11
165	Neo	17	Limited High, Wi-Fi 7-11
166	Neo	18	Limited High, Wi-Fi 7-11

Neo Adaptive Mode Operation

The SHoW DMX Neo system 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 uses 4 new Adaptive Mode SHoW IDs. Latency is also reduced to ~7mS max in Adaptive Mode.

Table 2: Neo Adaptive SHoW ID Table

SHoW ID	Mode	Universe	Bandwidth
201	Neo Adaptive	A	Full
202	Neo Adaptive	B	Full
203	Neo Adaptive	C	Full
204	Neo Adaptive	D	Full

The SHoW DMX System supports 16 different Frequency Hopping Spread Spectrum (FHSS) hopping patterns, maximum, full bandwidth broadcasting mode, and three different limited bandwidth broadcasting modes. The SHoW IDs allow the user to quickly select the desired combination of Hopping Pattern and Maximum, Full or Limited Broadcast option that is desired. Please see *The Advanced Wireless DMX Broadcast Features* of SHoW DMX in the SHoW DMX System User's Manual for more about how these features can be used.

Power

This menu allows adjustment of radio broadcast power which is used during wireless RDM responses.

RDM

Device Label: This label is user defined. You can edit the label by pushing the Enter button. A blinking cursor will appear under the first character in the label. Use the Up and Down Buttons to change characters and use the Right and Left buttons to move through the text string. Press Enter again to record your label. For example, if you had PDS-750 TRXs located in front of the DJ Booth, you could give them RDM Labels like "DJ Boot Left" and "DJ Booth Right"

Unique ID: The RDM unique ID is factory set and unique for each RDM responder.

PDS-750 TRX is a fully compliant RDM Receive Responder and can be monitored and configured via wireless RDM using the SHoW DMX RDM Monitor (embedded in the SHoW DMX Transmitter). The following device information is available via wireless RDM:
Unique RDM ID (read)
Device Label (set and read)
Starting DMX Address (set and read)
Output fault status (read)
Port configuration
SHoW ID (set and read)
Broadcast Power (set and read)
Receive signal strength (read)
Internal PCBA temperature (read)
Power supply voltage (read)

For more details, see The SHoW DMX System User's Manual.

Appendix B: Compliance Information

System Compliance Information

The City Theatrical 6500M PDS-750 TRX is CE Certified

Standards Applied:

EN 55103-1, EN55103-2
EN 60950-1:2006

Product Conforms to CE Marking Directive 93/68/EEC

The City Theatrical 6500M PDS-750 TRX is RoHS compliant
The City Theatrical 6500 PDS-750 TRX is ETL and cETL Listed and conforms to UL STD 508A and is certified to CAN/CSA STD C22.2 NO. 14-95

About the SHoW DMX Radios installed:
The City Theatrical 6500M PDS-750 TRX is equipped with a CE compliant City Theatrical 5792M SHoW DMX Radio which is FCC and IC Certified for use in the US and Canada and is CE Certified for use in Europe

Radio Compliance Information

5792M SHoW DMX Neo™ Radio Module
FCC ID: VU65792M
IC: 7480A-5792M

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.

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	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

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	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 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.

Product Installation and Configuration Guide © City Theatrical Inc. 2011

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.

5792M SHoW DMX Neo Radio CE Declaration of Conformity

CITY THEATRICAL

NEW YORK · LONDON

$C\epsilon$

EC Certificate of Conformity

Products covered by this Certificate

SHoW DMX Neo™

5792M Radio Module

This equipment complies with the requirements of the R&TTE Directive 1999/5/EC

Standards Applied:

ET SI EN 300 328 V1.8.1 (2012-06)

We have carried out all of the essential radio test suites according to the Standard EN 300 328 V1.8.1 harmonized under Article 3.2 of the R&TTE Council Directive 1999/5/EC. We have found that the model: 5792M complies with the requirements of the above-mentioned Standard.

EN 301-489-1 V1.9.2 (2011-09)
EN 301 489-17 V2.2.1 (2012-09)

We have carried out all of the required tests according to the Standards: ETSI EN 301 489-1 V1.9.2 and ETSI EN 301 489-17 V2.2.1 harmonized under Article 3.1(b) of the R&TTE Council Directive 1999/5/EC and Articles 4(a), 4(b) of the EMC Directive 2004/108/EC. We have found that the model 5792M complies with the requirements of the above-mentioned Standards.

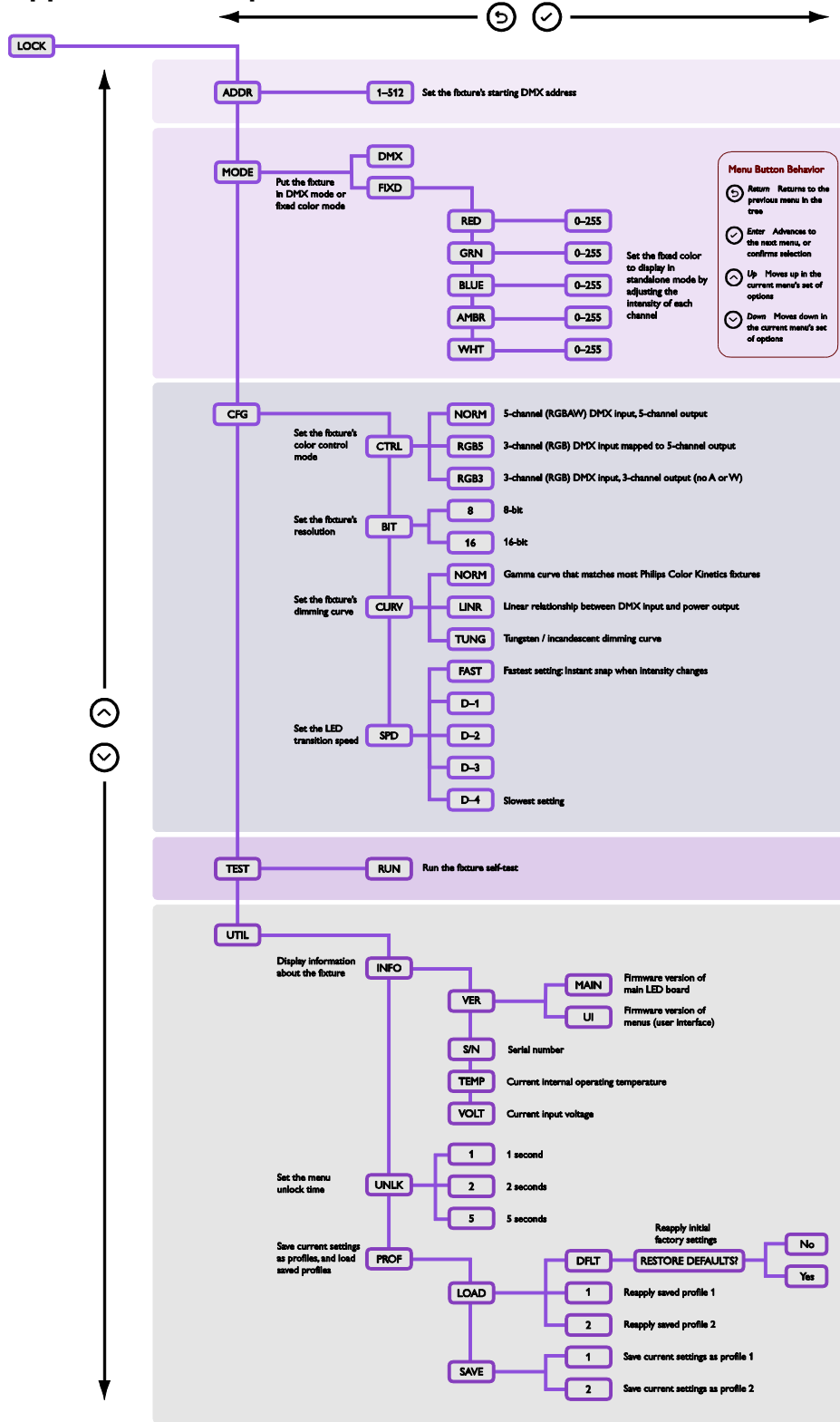Date of Issue: January 1, 2015

Year CE Marking First Affixed: 2015

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Appendix C: Philips ColorBlast 12 TRX Control Flow Chart

LOCK

ADDR — 1–512 — Set the fixture's starting DMX address

MODE — Put the fixture in DMX mode or fixed color mode
- **DMX**
- **FIXD**
  - **RED** — 0–255
  - **GRN** — 0–255
  - **BLUE** — 0–255 — Set the fixed color to display in standalone mode by adjusting the intensity of each channel
  - **AMBR** — 0–255
  - **WHT** — 0–255

Menu Button Behavior

↺ *Return* — Returns to the previous menu in the tree

✓ *Enter* — Advances to the next menu, or confirms selection

⌃ *Up* — Moves up in the current menu's set of options

⌄ *Down* — Moves down in the current menu's set of options

CFG
- **CTRL** — Set the fixture's color control mode
  - **NORM** — 5-channel (RGBAW) DMX input, 5-channel output
  - **RGB5** — 3-channel (RGB) DMX input mapped to 5-channel output
  - **RGB3** — 3-channel (RGB) DMX input, 3-channel output (no A or W)
- **BIT** — Set the fixture's resolution
  - **8** — 8-bit
  - **16** — 16-bit
- **CURV** — Set the fixture's dimming curve
  - **NORM** — Gamma curve that matches most Philips Color Kinetics fixtures
  - **LINR** — Linear relationship between DMX input and power output
  - **TUNG** — Tungsten / incandescent dimming curve
- **SPD** — Set the LED transition speed
  - **FAST** — Fastest setting: instant snap when intensity changes
  - **D–1**
  - **D–2**
  - **D–3**
  - **D–4** — Slowest setting

TEST — **RUN** — Run the fixture self-test

UTIL
- **INFO** — Display information about the fixture
  - **VER**
    - **MAIN** — Firmware version of main LED board
    - **UI** — Firmware version of menus (user interface)
  - **S/N** — Serial number
  - **TEMP** — Current internal operating temperature
  - **VOLT** — Current input voltage
- **UNLK** — Set the menu unlock time
  - **1** — 1 second
  - **2** — 2 seconds
  - **5** — 5 seconds
- **PROF** — Save current settings as profiles, and load saved profiles
  - **LOAD**
    - **DFLT** — **RESTORE DEFAULTS?** Reapply initial factory settings
      - **No**
      - **Yes**
    - **1** — Reapply saved profile 1
    - **2** — Reapply saved profile 2
  - **SAVE**
    - **1** — Save current settings as profile 1
   - **2** — Save current settings as profile 2

Appendix D: City Theatrical 6505 Terminal Block Adapter for PDS-750 TRX

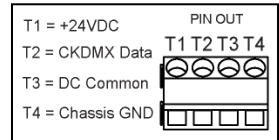**The 6505 Terminal Adapter for PDS-750 TRX™** is an accessory that converts the PDS-750 TRX CKDMX output 4P XLR connectors to screw terminals.

The 6505 Terminal Adapter features a unique direct connector system that minimizes interfaces and eliminates transition cables.

It is ideal for use in permanent installations with PDS-750 TRX units that are panel or rack mounted, and with fixtures that are not provided with XLR connectors.
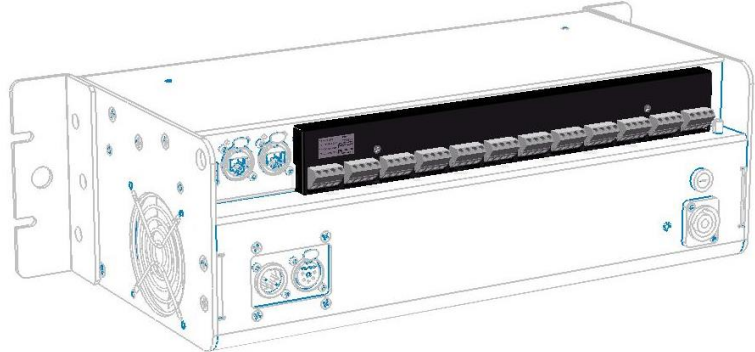
The first three positions of each 4P terminal block are for connection to the +24V, Data and Common signals of the PDS-750 TRX CKDMX outputs, while the fourth position is connected to the PDS-750 TRX's chassis ground.   The unit is provided with a pin out label (see right) to facilitate installation wiring.

T1 = +24VDC
T2 = CKDMX Data
T3 = DC Common
T4 = Chassis GND

PIN OUT
T1 T2 T3 T4

The 6505 Terminal Adapter may be factory installed on your PDS-750 TRX at the time of order or may be field installed by qualified personnel.

Mechanical

- Rugged NEMA 1 Steel and Aluminum construction
- Direct signal transition from XLR Connectors to Terminal Blocks on printed circuit boards.

Features

- (12) PCBA mounted Neutrik 4P XLR M connectors plug directly into PDS-750 TRX CKDMX outputs
- (12) Weidmüller LM 5.08/135 4P Terminal Block Outputs
- Max Output wire size 2.5^2 mm / 14AWG
- Chassis Ground connection on position 4 of each terminal block

CTI Part #: 6505

Appendix E: SHoW DMX Neo Compatibility

Power supplies shipped before June 1st 2012 are not compatible with SHoW DMX Neo SHoW IDs (IDs 101 - 204) without an upgrade. Firmware version 1.4.0 or higher and SHoW DMX Neo radio hardware are required for SHoW DMX Neo compatibility. Firmware version 1.4.0 or higher is compatible with all power supplies. If 1.4.0 or higher is installed with a SHoW DMX Classic radio, you will get the latest in bug fixes, but will not be able to set any SHoW DMX Neo IDs. There are two upgrade paths, firmware only and firmware with hardware via Cat # 6599 PDS TRX Neo Upgrade Kit. The path required depends on the SHoW DMX radio hardware installed in your power supply.

Upgrade Paths
Firmware Only
For power supplies shipped between October 1st 2011 and May 31st 2012, the power supply only requires updated firmware, available from our web site (www.citytheatrical.com). If your power supply has any of the below characteristics, you can upgrade using the firmware only path.
Firmware Only Upgrade Verification:
- Model number on bottom of unit is 6500 Neo
- SHoW DMX Neo equipped sticker on face of power supply
- Menu item Misc->Firmware->Radio Type is "Neo (CE)" (Available in firmware version 1.3.4 and above)

Firmware & Hardware
For power supplies shipped before October 1st 2011, both firmware and radio hardware are require to be compatible with SHoW DMX Neo systems. City Theatrical has created an upgrade kit for purchase as Cat # 6599 PDS TRX Neo Upgrade Kit. This kit can be purchased through your dealer. Please check with your dealer for pricing. This kit includes the SHoW DMX Neo radio and a USB drive with the latest firmware along with new labels for your power supply. If you prefer to not install the kit yourself, you can call City Theatrical for a RMA and send the power supply back to City Theatrical for installation at an additional charge. If your power supply has any of the below characteristics, you need Cat # 6599 PDS TRX Neo Upgrade Kit.
Firmware & Hardware Upgrade Verification:
- Model number on bottom of unit is 6500
- Firmware version is 1.3.3 or lower
- Menu item Misc->Firmware->Radio Type is "Classic (CE)" (Available in firmware version 1.3.4 and above)
- Menu item Misc->Firmware->Radio Type is "Classic (NA)" (Available in firmware version 1.3.4 and above)