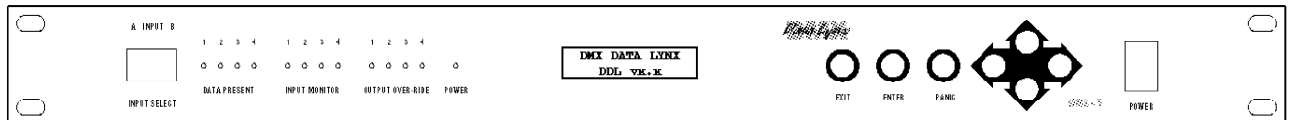


# Data Lynx



## OPERATION MANUAL

Version 2.4

## Forward

Thank you for purchasing the DMX Data Lynx.

Intelligent lighting has revolutionized the the entire lighting industry. Never before have lighting designers had such a vast array of powerful tools to use. But, with all that power also comes the potential for major problems. When data is interrupted for even a few seconds, many fixtures will behave poorly at best. It is imperative that intelligent lighting stays “online” at all times. Many people have begun to travel with two consoles in case the first one stops working. This is a costly proposition and in the time it takes to swap cables in an emergency, some fixtures may decide to do their own thing. Up till now, no one has given a viable and economical solution to these concerns.

The DMX Data Lynx was designed to be your total disaster recovery and trouble-shooting solution. We have condensed a vast amount of powerful features into a single rack space unit. The opto-isolated DDL-1 will give you the peace of mind that the show will go on, even if the main console won't.

We have provided a very easy to understand user interface which almost makes this manual needless, but to get you up to speed quickly, we suggest you read on.

### Key Features List

- \*Instantly switches between any two DMX consoles with up to four outputs each, with no cable swapping.
- \*Buffers DMX data for extended cable runs.
- \*Records or creates up to 10 back-up looks from the main console in seconds. *2048 channels each*
- \*Quickly accesses any or all of the back-up looks using a “GO” button; either manually or automatically.
- \*Performs all standard DMX test routines (Transmit Some, One, All, Auto Fade One, Auto Fade All channels).
- \*Displays data as decimal, percentage or hex.
- \*Transparently reads, saves and diagnoses DMX data packets; even during a show.
- \*Tests multiple moving fixtures at any starting address using PC editable fixture libraries.
- \*Tests cables through the entire system, including through opto-splitters.
- \*Incorporates opto-isolation on all inputs and outputs to prevent ground loops and static problems.
- \*Front panel LED's display the user configuration and data status at a glance.
- \*Convenient internal voltage select switch for 115VAC or 230VAC operation.

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## Menu Structure

### Main Menu

< Receive Mode > < Transmit Mode > < Fixture Test > < Display Mode > < Cable Test > < Panic Setup > <Download Mode>

#### < Receive Mode >

Input Monitoring Selection

< View DMX > < Store Bank > < Clear DMX > < Diagnostics > < Auto Backup >

#### < Transmit Mode >

Output Over-ride Selection

< Some > < One > < All > < Autofade One > <Autofade All > < Bank Mode > < ClearDMX >  
< Store Scene , Recall Scene >

#### < Fixture Test >

Output Over-Ride Selection

<Select Fixture 1-10 >

Starting Address

Test How Many

<Selected Tests - Auto Test>

Test Edit

#### < Display Mode >

<Data Type> <Backlight> <Credits>  
< Decimal - Percent - Hex > <Off-On>

#### < Cable Test >

Select Input

Select Output

#### < Panic Setup >

Store Full Scenes 1-10

#### < Download Mode >

< PC Download? > < Upload Fixture > <Clear Fixture Memory>  
Select Input Output Over-ride

Left and Right arrow keys scroll through the menus and DMX channels.

Up and Down arrow keys change DMX levels. Up key also used to toggle I/O selections on and off.

Exit key leaves a mode or ends a procedure.

Enter key takes you into a mode or confirms a selection.

Panic key then Enter key starts the Panic mode; All inputs are turned off and previously stored panic scenes are sent to the outputs.

The LCD usually shows arrows to inform you of the next valid key press for making a selection.

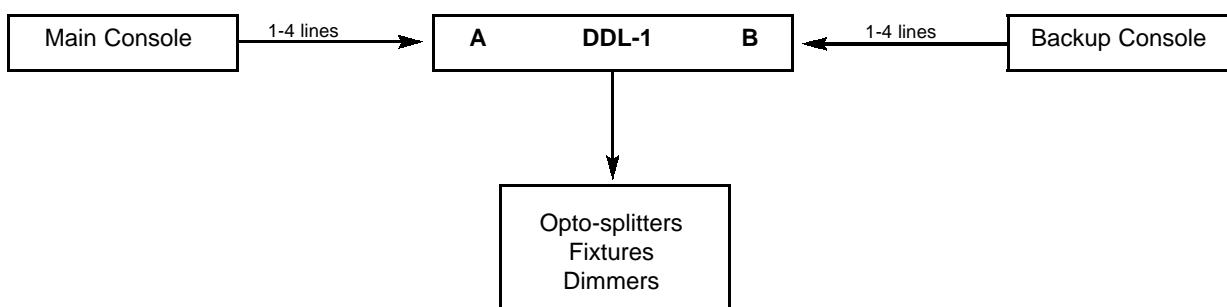
## Power-up Passive Mode

When the DMX Data Lynx is powered up but no functions have been initiated, the DDL is in passive mode. The LCD displays “Main Menu” on the top line. In this mode the DMX data present at the selected DMX inputs (A or B) is buffered and sent to the output jacks. No processing is performed on the data. The DDL is essentially transparent between the console and the fixtures. The DDL will even pass DMX data with the power switch off, due to internal bypass relays.

## Selecting The Live Console

In it's simplest operation, the DDL can be used to easily switch between two DMX consoles with up to four outputs each. That is a total of 2048 channels of DMX per console. The DDL is not limited to switching just one type of setup. Any configuration of up to 4x2 inputs and 4 outputs can be used. The DDL could be used to switch 2- four output consoles or 4- two output consoles or many other configurations.

### Basic Configuration



Switching the front panel rocker from A to B will instantly turn off A inputs 1-4 and reroute B inputs 1-4 to outputs 1-4. The power LED will change from green (A) to red (B). If you are using two consoles and the consoles are tracking each other through midi or other synchronization methods, the change-over will be seamless. The Data Present LEDs, on the front panel, show you at a glance if there is data at the outputs of the DDL.

## Receive Mode

```

  Main  Menu
  < Receive Mode? >
  
```

This mode allows you to view, diagnose and automatically backup the DMX data of a selected input and also store that data in memory. Like Passive Mode, Receive Mode will not alter the DMX data. It is transparent between the console and the fixtures or dimmers.

## Input Monitoring

```

  Monitor Input
  ^1?  2?  3?  4?^
  
```

When Receive Mode is entered, the display will ask which of the four active inputs you wish to moni-

tor. The **Left** and **Right** arrow keys scroll between the inputs. The **Up** arrow key selects the input to monitor. The question mark in the display will then change to an asterisk, and an LED on the front panel will light corresponding to the input being monitored. The **Enter** key confirms your selection and takes you to the next step. Only one input (512 DMX channels) may be monitored at a time.

### View DMX

Receive Mode			
<	View DMX?	>	

Rxd	1	2	3
Lev	0	127	255

Here, you will be able to view the DMX data being sent by the console. The DMX data being received is temporarily stored in memory. We call this memory the working bank. The data received will remain in the working bank until Receive Mode is exited or DMX is cleared. The **Left** and **Right** arrow keys scroll through the DMX channels 1-512. The top line of the LCD displays the channels being viewed. The bottom line of the LCD display the data. This data will be displayed in the format that was selected in Display Data Type mode. The DMX values may be displayed as decimal, percentage or hex. The DDL is transparent to the console while receiving data. The DMX data is not altered in any way by the DDL. The data at the inputs is simply buffered and then read. The **Exit** key leaves this mode.

### Store Scene

Receive Mode	
<	Store Scene? >

Store Scene to	
Scene 1?	Out ?

In this mode, the DMX data that has been temporarily stored in the working bank can now be permanently stored in non-volatile memory. There are a total of 40 memory locations in the DDL. They are designated by the scene number and also by the output number. You could also view this as ten full scenes which include all four outputs. Although any scene could be transmitted to any output in Transmit Mode, it helps keep them organized by naming the scene according to the scene number and also the output you will transmit this data on. *Remember, these scenes will also be transmitted in Panic Mode.* Storing a scene in either Transmit Mode or Receive Mode will write over a previously stored Panic Scene. This Store Scene function is made available to enable you to rewrite a single output from a single scene without effecting any other output or scene.

This function also opens up another entirely different use for the DDL. If you chose this method, the DDL could be used as a simple 40 scene playback console. Sometimes you may not need a large console to play back some static scenes for a small show. The DDL lets you configure it to act as a single output, 40 scene playback controller. First, you would store the scenes you would want to use. Then, you would recall these scenes from inside Transmit mode.

Here is how Store Scene works. While in View DMX, the scene being received is held in the working bank. This scene may be then stored into memory. By pressing the **Exit** key once, the DDL will exit View DMX but remains in Receive Mode. The **Left** or **Right** arrow keys can be used to scroll to Store Scene. When the **Enter** key is pressed, the display will ask which scene you wish to store to. The display will also ask which output this scene should go to in Panic Mode. The **Up** and **Down** keys are used to select the scene and output number. The **Enter** key initiates your selection. The **Exit** key leaves this mode.

*See the chart at the end of this manual to help you further understand the memory structure of the DDL.*

## Diagnostics

```

Receive Mode
< Diagnostics? >
  
```

```

Diagnostics
< Updates >
  
```

From inside Receive Mode, you may enter the diagnostics function. This function is given to aid advanced DDL users in tracking down tough data problems. The *Left* and *Right* arrow keys scroll you through the different tests. The *Enter* key starts the test. Here is a list and explanation of the tests that can be performed on the incoming DMX data.

**Updates;** Displays the number of DMX packet updates received per second.

**Break Length;** Shows the time from the falling edge of the break to the rising edge of the MAB.

**MAB Length;** Shows the time from the rising edge of the Mark After Break to the first start bit.

**DMX Channels;** Displays the number of channels being received.

**Break - Break;** Shows the time from the start of one break to the start of the next break.

**Start Code;** Displays the value of the start code byte.

Here are some typical values you will see. Any number outside these ranges would be considered an error in the DMX transmission.

Updates = 1 per sec. min. // 44 per sec. max. (512 channels)

Break Length = 88us min. // 1 sec. max.

MAB Length = 8us min. // 1 sec. max.

DMX Channels = 1 min. // 512 max.

Break - Break = 1.196ms min. // 1 sec. max.

Start Code = DMX start code for lighting should always be 00 (zero)

For further information on the DMX standard, refer to the USITT DMX/1990 Digital Transmission Standard For Dimmers And Controllers.

## Auto Backup

```

Receive Mode
< Auto Backup? >
  
```

```

* Auto Backup *
Standby= Data OK
  
```

The Auto Backup feature enables the DDL to automatically take over the DMX lines when the selected monitor line on both ports stops receiving data. This is a “hands free” way of using the Panic mode. Choosing Auto Backup and pressing the *Enter* key after making your monitor selection puts the DDL into Auto Backup Mode. If good DMX data is being received, the display will tell you that the data is OK. The DDL will automatically read and store the last valid DMX packet into Panic Scene #1 for all four inputs on port A. You will see the input monitor LEDs scroll as the DDL reads the DMX input lines. If for some reason the input you have selected to monitor goes dead for over one second, the DDL will switch the input port to B and check if there is valid DMX on that those lines. If there is good DMX on the port B inputs, the DDL will continue to update the first Panic Scene. If port B then stops receiving data, the DDL will jump into Panic mode and transmit Panic Scene #1. Remember that Panic Scene #1 has the last known good DMX values sent by the console, so there won’t be any sudden change in the lighting. The DDL is now in control of the DMX lines. You will see many flashing LEDs on the front panel as the DDL writes data to each output. At this point, you can select another

Panic scene to send by using the *Up* and *Down* arrow keys to make your scene selection. Then press *Enter* to “GO” to that scene. The top line of the display shows what scene is live. The bottom line of the display scrolls through the scenes for your selection. The DDL reacts just the same as if you had entered Panic mode from the front panel, (*except that you didn't have to do anything*).

When the problem with the main console or DMX line has been solved, press the *Exit* key to return control over to the main console. The DDL will now be back to the Receive Mode selection menu. The flashing lights will also stop. By pressing *Enter* again, you will return to the Auto Backup mode. Note that in Auto Backup mode, the DDL is transparent to the DMX data until the monitor lines stops receiving data. The DDL simply reads and saves data without altering your show in any way.

**\*The A/B Select switch must be in the A position for Auto Backup to function correctly.**

## Transmit Mode

```

Main Menu
<Transmit Mode?>

```

Transmit Mode has many functions to let you edit and transmit DMX data in a variety of ways. All of the standard test routines are available here.

## Output Over-ride

```

Over-ride Output
^1?  2?  3?  4?^

```

Once Transmit Mode is selected, you will be asked which output (1-4) the data will be sent to. *Left* and *Right* arrow keys move between the outputs. The *Up* key is used to toggle the output over-ride on and off. Any or all of the four outputs may be in over-ride simultaneously. When an output is in over-ride, the selected input from the main console is disabled. The DDL then becomes the controller for that output. An LED corresponding to the output in over-ride mode will light as an indicator. The question mark in the display will also turn to an asterisk to show you that an output is in over-ride. Remember, if you don't see any over-ride LEDs on, then the DDL is *not* talking on any of the DMX output lines. The *Enter* key confirms your selection and takes you to the next step.

## Adjust Some

```

Transmit Mode
< Adjust Some? >

```

```

Txd   1   2   3
Lev   0 127 255

```

Adjust Some allows you to change the level of any of the 512 channels independently. Any number of channels may be set to a non-zero level. The channel number displayed at the left of the display is the channel being edited. The *Up* and *Down* arrow keys change the level of the selected channel. If you press and hold down the *Up* or *Down* keys, the DDL will automatically scroll through the values. When the data reaches full value (*255 in decimal, 100% or FF in hex*) or zero value, the scrolling will stop until the key is released and pressed again. This avoids scrolling past 255 or zero. The *Left* and *Right* arrow keys will move between channels to be edited. Normally, all editing of scenes to be stored in



Transmit Mode would be done in the Adjust Some mode. The scene being edited may be stored into memory by using the bank mode discussed later. The *Exit* key leaves this mode.

### Adjust One

```
Transmit Mode
< Adjust One? >
```

```
Txd   1   2   3
Lev   0 127 255
```

This mode allows you to change the level of only one channel at a time. All other channels are held at zero. Some people may also call this mode “rig check”. The *Up* and *Down* arrow keys change the level of the selected channel in the same way as in Adjust Some. The *Left* and *Right* arrow keys move to the next channel to be edited. For instance, bring channel 1 to a level of 100.. By pressing the right arrow once, channel 2 is now at level 100 and channel 1 is put back at level 0. All other channels remain unchanged. This function is great for testing scrollers or scanning through an entire conventional system. The *Exit* key exits you out of this mode.

### Adjust All

```
Transmit Mode
< Adjust All? >
```

```
TXD All Channels
Lev   0 127 255
```

Adjust All, allows you to change the level of all 512 channels simultaneously. The *Up* and *Down* arrow keys change the level of all channels in the same way as discussed above. The *Exit* key leaves this mode.

### Auto Fade One

```
Transmit Mode
<Auto Fade One?>
```

```
Fade  1   2   3
Lev   0 127 255
```

This mode automatically fades the level of the selected channel from 0 to 255 (full) and then fades the level back to 0. The *Left* and *Right* arrow keys move to the next channel to be auto faded. The *Exit* key leaves this mode.

### Auto Fade All

```
Transmit Mode
<Auto Fade All?>
```

```
Fade All Chan.
Lev   0 127 255
```

In this mode the DDL will fade all 512 channels from 0 to 255 (full) and then fade them back to 0. This is a very useful mode for testing large numbers of conventional fixtures or scrollers simultaneously. The *Exit* key leaves this mode.

### Bank Mode

```
Transmit Mode
< Bank Mode? >
```

```
< Store?
    Recall? >
```

From inside Transmit Mode, you can store and recall scenes from memory.

## Store Scene

```

Store Scene to
Scene 1?  Out ?

```

After editing a scene in Adjust Some, you may store it into any of the 40 memory locations available. The display will ask you for the scene you wish to store to and also the output you want this scene to be sent to when in Panic Mode. *Up* and *Down* arrow keys select the scene and output. The *Enter* key initiates the selection. The *Exit* key exits this mode.

## Recall Scene

```

Recall Scene
Scene 1?  Out ?

```

This allows you to edit or transmit a previously stored scene. *Up* and *Down* arrow keys select the scene and output it had been stored to. The *Enter* key initiates the selection. The recalled scene is placed in the working bank and the unit jumps to Adjust Some. This scene is then transmitted to the selected output. It may then be edited and stored again if needed. The *Exit* key leaves this mode.

## Clear DMX

```

Main Menu
< Clear DMX? >

```

The DDL uses a working bank to hold all incoming and outgoing DMX data. If you were in Transmit Some and many levels were incorrect, Clear DMX would initialize the working bank to level 0 for all channels, thus giving you a clean start for your editing.

## Panic Setup Mode

```

Main Menu
< Panic Setup? >

```

```

RXD Scene 1
Enter To Store

```

Entering Panic Setup Mode allows you to store up to 10 full scenes (40 single scenes) for use in Panic Mode, Auto Backup Mode or to be recalled in Transmit Mode. Each full scene contains 4 discreet outputs of DMX information. Each DMX output can hold up to 512 channels of information. So, if you do the math, you will find that the DDL can store 2048 channels of DMX in each full scene. There are 10 of these full scenes available to store backup looks in. *Remember that if you use Auto Backup, it will over-write the first Panic Scene stored here with the last known good DMX values sent from the console.*

Panic Setup could not be easier. The *Up* and *Down* arrow keys will allow you to select which full scene you will be storing to. The *Enter* key will store the information in memory. The *Exit* key leaves this mode.

For instance;

- 1) Patch the DDL into the system between the console and the lines feeding the dimmers or fixtures.
- 2) Bring up a cue on the console that you will want to use in an emergency if the console fails.
- 3) From the main menu of the DDL, scroll with the **Left** or **Right** arrow keys to get to Panic Setup. Press the **Enter** key. The display will tell you that it is ready to receive scene 1.
- 4) By pressing the **Enter** key again, the cue you have up on the console will be stored into full scene 1 of the DDL. The display will then tell you it is ready to store scene 2. The display will walk you through all ten scenes to be stored.

The **Up** and **Down** arrow keys allow you to move to a different scene to be stored. You do not need to store all ten scenes at once. You can store some scenes now and then later go back and store others without effecting the scenes stored earlier. The **Exit** key leaves this mode.

## Panic Mode

```
*Panic Scene*  1
Go To Scene   2?
```

Panic Mode allows you to recall and transmit the full scenes you stored in Panic Setup Mode. Pressing the **Panic** key brings up a display asking if you want to “GO” to scene 1. At this point, you could choose any scene 1-10 by using the **Up** an **Down** keys. The **Enter** key will start the Panic Mode. When started, the DDL will disable all outputs from the console. The DDL will instantly take over and start transmitting the selected full scene. You can then use the **UP** and **Down** arrow keys to select the next full scene to be transmitted. The **Enter** key acts as a GO button. The data present and output over-ride indicator LEDs will chase continuously while in Panic Mode. The **Exit** key leaves this mode and returns control of the system to the console.

Note that the DDL switches instantly to the next scene when the **Enter** key or “GO” is pressed. Fade times are not used due to the unwanted results you would get with many moving light fixtures. For instance, a long fade time on a gobo or color wheel would cause the wheel to index through many unwanted colors or gobos. It may even do a color or gobo shake. This may not be the result you were looking for. This is not a limitation of the DDL, but a function of the fixture itself. Due to these facts, we thought it best not to have the DDL crossfade panic scenes.

## Display Mode

```
Main  Menu
< Display Mode?>
```

## Data Type

```
Display Data In
<Dec.  %^  Hex>
```

The DDL is capable of displaying DMX data in decimal (0-255) , percentage (0-100%) or in hexadecimal 00-FF. When you enter Display Mode, the LCD is asking you which form you would like DMX data displayed in. The **Left** arrow key selects decimal, the **Right** arrow key selects hex and the **Up** arrow key selects percentage. Your choice of display data type is retained in memory so it remains the same each time the DDL is powered up. After your selection, you are returned to the Display menu.

Remember that Percent Mode has only 40% the resolution of Decimal Mode. If accuracy is important, use Decimal Mode. If you just need a quick reference, then use Percent Mode. Note that in Percent Mode, you will be scrolling through all the numbers but the display will be limited to 0-100%. In this way, you will still be able to get any value 0-255 while displaying the data as a percentage. Due to this, you may need to press a key more than once to see a change on the display, though the actual data value being sent out will change with each key press.

## Backlight

```

Backlight
<ON?      OFF?>
    
```

In this menu, you may select to turn the LCD backlight off. The *Left* and *Right* arrow keys select *on* or *off* for the backlight.

## Credits

If you have ever wondered who designed this device, look here. This page also contains some legal information.

## Cable Test Mode

```

Main Menu
< Cable Check? >
    
```

```

Monitor Input
^1?  2?  3?  4?^
    
```

```

Over-ride Output
^1?  2?  3?  4?^
    
```

Cable Test Mode is a functional test of a cable connected between the selected input and output. This is not a pin to pin test but a true data test. The DDL transmits DMX data to the selected output and reads it back on the selected input. If the data sent and received is not corrupted, “Cable Passes DMX” will be displayed. If there are any errors in the data, “Cable Defective!” will be displayed. Cables may be connected and disconnected without having to reset the test function. It works on a continuous loop, so the results are displayed immediately. Being a functional cable tester, the DDL is also capable of finding problems with other gear such as opto-splitters or fixtures. By providing a return path, the cables for an entire system may be checked at once. As in other modes, you will first need to select the input to monitor as well as the output to over-ride. After making your selection with the *Up* arrow key, press the *Enter* key to confirm your choice. The cable test will begin automatically. The *Exit* key leaves cable test and returns you to the main menu.

## Fixture Test Mode

```

Main Menu
< Fixture Test?>
    
```

Fixture Test Mode is a powerful way to test moving or conventional lighting fixtures through all of

their functions. The fixtures are held in libraries which can be downloaded from any PC with a serial (COM) port. The DDL can store ten of these fixture libraries in it's internal memory. All DMX data about a fixture is stored in it's library. The DDL keeps track of everything; including color, FX and gobo indexing values, color mixing defaults and open white settings, etc.. All types of lights may also be tested using Adjust Some from the Transmit Mode, but the tests in Fixture Test Mode will give you much more power to test any moving fixture quickly and easily without having to remember channel assignments.

## Fixture Libraries

The fixture library files are simple ascii text files that tell the DDL about the given fixture. The file has information on: Fixture name, Total channels, Parameter, Default values, Channel assignments, indexing values for wheels, Test number, Edit time, Number of edits. The tests range from sweeping pan and tilt to indexing through gobos or colors. All of the fixture libraries can be edited or created on any PC using a text editor such as Notepad.

*See the library documentation for details on writing and editing fixture libraries on any PC.*

## Output Over-ride

```
Over-ride Output
^1?  2?  3?  4?^
```

Once Fixture Test Mode is selected, you will be asked which output (1-4) the data will be sent to. **Left** and **Right** arrow keys move between the outputs. The **Up** key is used to toggle the output over-ride on and off. Any or all of the four outputs may be in over-ride simultaneously. When an output is in over-ride, the selected input from the main console is disabled. The DDL then becomes the controller for that output. An LED corresponding to the output in over-ride mode will light as an indicator. The question mark in the display will also turn to an asterisk to show you that an output is in over-ride. Remember, if you don't see any over-ride LEDs on, then the DDL is **not** talking on any of the DMX output lines. The **Enter** key confirms your selection and takes you to the next step.

## Select Fixture

```
<Select Fixture>
Cyber Litho  m2
```

Next, you will chose the fixture to test. The **Left** and **Right** arrow keys scroll through the 10 available fixtures. The **Exit** key takes you back to the output over-ride selection. The **Enter** key takes you to the next step.

## Starting Address

```
<What Is The  >
Start Addr.?  1
```

Here, you will select the starting address of the fixture to be tested. **Left** and **Right** arrow keys select the starting address. The **Enter** key confirms your choice.

## Test How Many?

```
^Test How Many ^
  Fixtures?      1
```

This is where you select the number of fixtures to test. To test multiple fixtures, the fixtures must be of the same type and be addressed in sequential order without unused channels between fixtures. The Up arrow will increment the number of fixtures to test. The DDL will not allow you to make an error and select too many. The DDL calculates how many fixtures you could test from the given starting channel and the type of fixture and limits your selection to a valid number.

## Select Test Type

```
<Select Tests?
  Auto Tests? >
```

```
Press Enter
To Begin Tests
```

You may choose to run the tests in one of two modes. The first is Auto Tests. In this mode, all tests will be performed automatically one after another. This is good as a burn-in test for a fixture. The other mode is Select Tests. In this mode, the parameter being tested will not change until you press the **Left** or **Right** arrow keys. This is good if you just want to test a single parameter on a fixture over an extended period of time.

## Testing

```
Default Values
Sent To Fixtures
```

```
█< Pan >
  Cyber Litho m2
```

The DDL will now perform tests on the fixture you have selected. The cursor will blink in the upper left of the LCD display during normal operation of a test. The top line of the display also displays the parameter being tested. The bottom line of the display shows the name of the fixture that is being tested. The **Right** and **Left** keys will scroll through the parameters that are to be tested. The **Up** key will “bump” through the individual steps of a test. The DDL has nine different test types that are available for any parameter. Some of the tests fade through all the values over a selected range. Another tests “steps” through discreet values for a parameter. Other tests are combinations of the first two test types. The “Step Test” in the DDL will send and hold data for a parameter for a set amount of time. This test is used for testing color and gobo wheels or anything that needs a set value to test. The **Up** arrow (bump) will allow you to quickly go through all the colors or gobos without waiting for the hold time that is set in the fixture library. *See the Fixture Library documentation for further details on writing fixture files.*

## Test Edit

```
*< Pan >127
  Cyber Litho m2
```

Once the test routine has started, you may press the **Enter** key again, which brings you into the Test Edit Mode. The blinking cursor in the upper left corner of the display will now change to an asterisk. The DDL continues to transmit data, but you now have the ability to adjust the level of any channel manually. The **Left** and **Right** keys will scroll through the fixture parameters. You don’t need to remember DMX channel assignments, the display will read “Pan” when you are adjusting that parameter. The

current value for the selected parameter is displayed in the upper right of the LCD.

Test edit is a very powerful feature that allows you to change the values manually for any parameter. This mode is very useful when checking a gobo. For example, when the fixture test gets to the gobo test, you may find that the gobo is not in focus. Simply press **Enter** to begin the Test Edit, and scroll over to “focus”. Then use the **Up** and **Down** arrow keys to adjust the focus. Pressing **Exit** will put you back at the same place you entered Test Edit from. In this case, you would be back at gobo test, but now the gobo will be in focus. The new value for focus will be held in memory until focus is adjusted in the tests. At that point, focus will revert to the default value held in the fixture library. If you had chosen Select Test instead of Auto Test, the new value for focus would stay until focus was selected to test.

## Download Mode

```

Main Menu
<Download Mode?>

```

### PC Download

```

Download Mode
< PC Download >

```

In this mode, you will download the fixture library files from a PC running the downloader software. First, you will need to install the downloader software on your PC. The software is compatible with Window 95, 98 and NT. *See the instructions that came with the downloader software for installation procedures.* After the downloader software is installed, connect the RS232 - RS485 adapter cable between the PC and the DDL. You are now ready to use the downloader software. From the start / program menu, start the downloader software. When the software starts, you will need to select the Com Port to send the data out. After that, select the different fixtures you wish to test. The DDL can hold ten of these fixture library files.

```

Monitor Input
^1?  2?  3?  4?^

```

```

Start Download
RXD Fixture#

```

Back over on the DDL, select Download Mode from the menu and then select PC Download. Now, the DDL asks you which input to read / monitor. Using the **Left** and **Right** arrow keys, select the input that you have connected your PC serial port to. Press the **UP** arrow to toggle the selection. Then, press **Enter** to confirm the input selection. The DDL will then be waiting for the download to begin.

On your PC, click on “Download” in the PC downloader program. A status bar will show you graphically how far along the procedure is. The DDL will flash a cursor in the upper left corner of the LCD as soon as it starts receiving the files. The fixture number (1-10) being received will display in the lower left corner of the LCD. If the data is received correctly, the DDLs LCD will display “Fixture Data Loaded OK!” If there was a problem, such as you selected the wrong COM port, the DDL will time-out after 20 seconds. You may then make the needed changes and download the fixture tests again.

## Clear Fixture Memory

```
Download Mode
<Clear Fixture?>
```

```
Are You Sure?
< Yes      No >
```

This function clears all of the fixture data from the DDL. The DDL will ask you if you are sure before erasing the fixture files. Once initiated, all fixtures in the Fixture Test Mode will display “Blank Fixture X”. After clearing the fixture files, it will be necessary to download fixtures to the DDL from a PC.

```
All Fixture Data
Has Been Cleared
```

## Upload Fixture

```
Download Mode
<Upload Fixt.? >
```

This function is used to send a single fixture from the DDL to it’s little brother the DMX Palm Lynx (DPL). You could also use upload fixture to send one fixture file to another DDL if desired.

## Output Over-ride

```
Over-ride Output
^1?  2?  3?  4?^
```

Once Fixture Test Mode is selected, you will be asked which output (1-4) the data will be sent to. *Left* and *Right* arrow keys move between the outputs. The *Up* key is used to toggle the output over-ride on and off. Any or all of the four outputs may be in over-ride simultaneously. When an output is in over-ride, the selected input from the main console is disabled. The DDL then becomes the controller for that output. An LED corresponding to the output in over-ride mode will light as an indicator. The question mark in the display will also turn to an asterisk to show you that an output is in over-ride. Remember, if you don’t see any over-ride LEDs on, then the DDL is *not* talking on any of the DMX output lines. The *Enter* key confirms your selection and takes you to the next step.

```
<Select Fixture>
Cyber Litho  m2
```

Using the *Left* and *Right* arrow keys, select the fixture you wish to upload to the DPL. On the DPL, go to Download Mode\ PC Download. The DPL is now waiting for the fixture data. You have 20 seconds to begin the upload to the DPL. If no data is received, the DPL will time out after the 20 seconds. Back on the DDL, press the *Enter* key to start the upload. After the upload is complete, you will be returned to the main menu.

```
Uploading Fixt.
Please Wait....
```

```
Fixture Upload
Complete!
```



## Opto-Isolation

Ground potential differences are a major source of data corruption in a digital lighting system as well as a shock hazard. Ground potential differences may be caused by any number of variables. Multiple power distribution is one source. Due to the high current needs of modern lighting, these differences are sometimes unavoidable.

The DDL-1 incorporates opto-isolation or galvanic isolation on the groups of inputs and outputs as well as the internal logic. The DDL-1 acts as a central “hub” to isolate problems in any area of the system from effecting other areas. When used in this way, it provides added protection to the entire system. The DDL’s four independent power supplies prevent ground loops and helps lessen the effects of ESD (electro static discharge). When the power is turned off, the DDL connects all inputs on port A to the outputs, this includes the signal ground lines. When powered up, the DDL breaks this connection.

## Replacing The Memory Back-up Battery

The DDL uses a CR2032 lithium coin battery for memory retention. The life of the battery is 5-10 years. When the battery is getting weak, the DDL will let you know at power-up. The display will flash “Warning Low Battery” . To replace the battery, you will need to remove the top cover of the DDL. On the CPU circuit board you will find the battery installed in a holder. Press on the back of the battery and slide it forward. Install the new battery in the opposite manner. Make sure to check the polarity of the battery before installing it. The positive side should be facing up. Reinstall the top cover and screws. After replacing the battery, you should clear all memory and reload fixtures.

## Clearing All User Memory

After replacing the internal memory backup battery, it is necessary to initialize all user memory. You may also want to clear the memory when setting up a new show to erase all panic scenes and fixture libraries.

With the unit off, hold down the **Exit**, **Enter** and **Panic** keys as you turn the unit on. The display will tell you that all memory has been cleared.

*Remember, this function will erase ALL user memory. All scenes, user settings and fixture tests will be erased.*

## Memory Structure

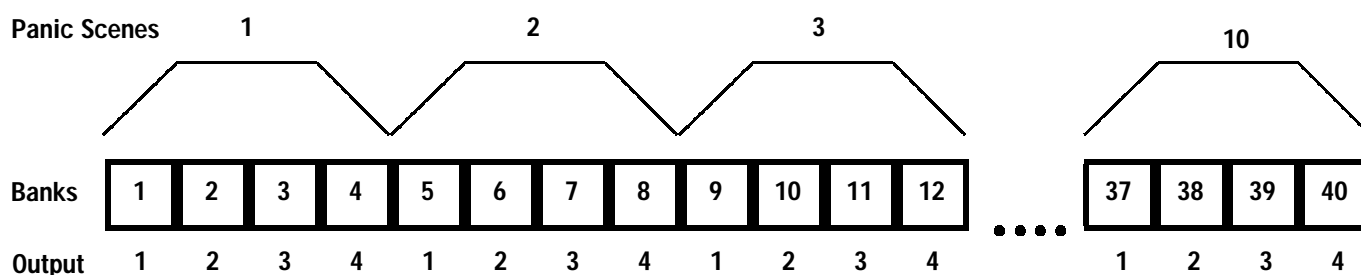
Understanding the memory structure of the DDL is important when using some of the advanced editing features available to you. It may seem complex at first, but let us try and explain it simply and visually.

### In Transmit and Receive Mode

The memory for the DDL is defined as scenes and outputs. There are a total of 40 memory banks. Each of these banks contains 512 channels of DMX information. As you have seen from the earlier pages, you don't access the memory by bank number, but by scene and output number. Every scene has an associated output number. The scene does **not** have to be routed to its designated output when a scene is recalled from Transmit Mode. The output over-ride function routes the data to any or all of the outputs. Therefore, if you were not concerned with any panic looks, you could view the memory as 40 independent scenes. Remember, that you would still call them up by their scene number and output number though. In both Transmit and Receive Modes, you can store data to any memory bank regardless of the output selected in the output over-ride. For instance, after saving your panic looks, you later find that one of the four outputs had incorrect information, you could edit that single output for a chosen scene without effecting the other outputs by using the Recall Scene function from within Transmit Mode. This gives you the power to edit your Panic scenes even if the main console is not available.

### In Panic Mode

When the memory is accessed through Panic Mode, each stored scene will only go to its preassigned output. Each panic or "full" scene is made up of one scene with 4 independent outputs. As you can see from the drawing, panic scene 1 is comprised of scene 1 for outputs 1-4. When you store a panic scene in the Panic Setup Mode, you are actually storing data to four discreet memory banks. Panic Setup Mode is obviously the quickest way to create your backup looks, but we gave the DDL the flexibility to create and edit scenes in many different ways.



## Glossary

- DMX** Serial data protocol used in the lighting industry based on the RS-485 standard. Uses approved two conductor shielded cable. Baud rate is 250Kbps. The DMX information is transmitted in packets. Each packet has a Break, Mark After Break, Start Code and up to 512 bytes of data.
- Scene** A stored configuration of the levels of 512 channels of DMX. May also be called a look or a cue.
- Full Scene** An entire scene, look or cue made up of 512 channels of DMX on all 4 outputs. This makes a total of 2048 channels of DMX. Panic Mode uses Full Scenes.
- Working Bank** This is the area of memory that incoming/outgoing DMX data is stored temporarily. Any editing of the DMX data is done in the working bank.

## Technical Information

Input impedance = 120 ohms

Output Drive = Buffered RS-485 compatible (32 fixture on each output) pin2 = data- // pin 3 = data+

Break = 88us nominal

Mark After Break = 11 us nominal

Dimmers Transmitted = 512 per output 2048 total in Panic Mode

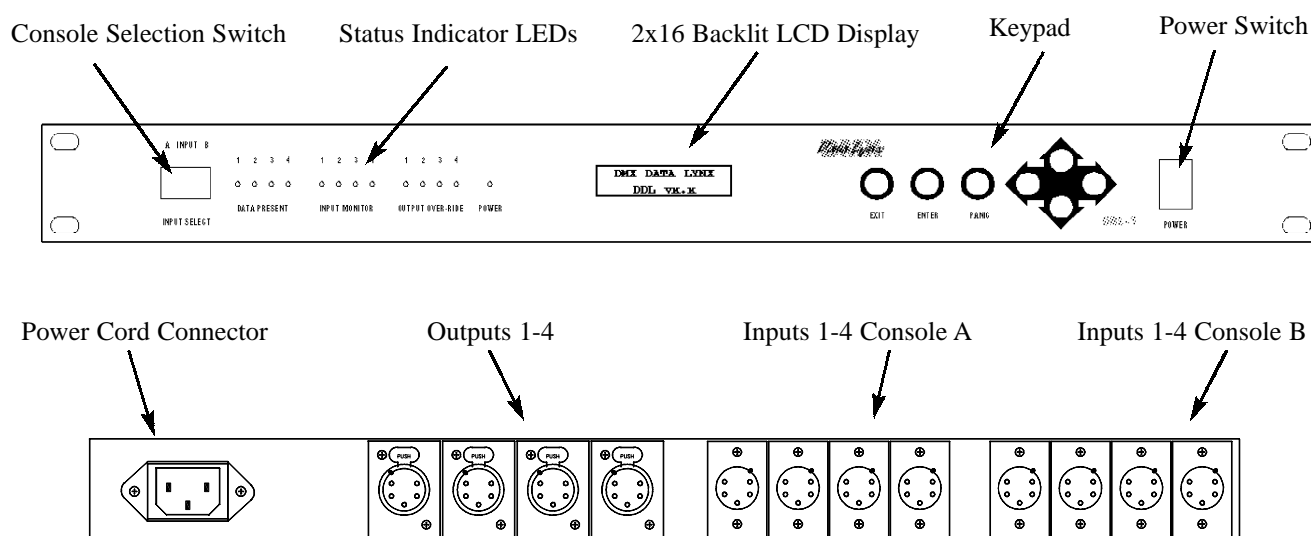
Start Code = 0

Baud Rate = 250Kbps

Memory Battery Life = 5 years

Operating Voltage = 115VAC or 230VAC internally selected via switch

*\*specifications subject to change without notice*



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## Limited One Year Warranty

Upstaging, Inc. (Upstaging) warrants the original owner or retail customer (Customer) that during the warranty period Upstaging will repair or replace its products that are defective in materials or workmanship under normal use and service, subject to the terms of this limited warranty. The warranty period shall begin on the date of purchase and shall continue for a term of one year for parts and/or workmanship. It is customer's responsibility to furnish receipts or invoices for verification of original purchase. If the purchase date can not be provided, date of manufacture will be used to determine the warranty period.

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## Support

For the latest fixture library files, operations manuals and other helpful information, please visit our web page.

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