

DMXchange

Advanced Data Crosspatching System

OPERATOR MANUAL

Version 3.1

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1.0 PRODUCT DESCRIPTION

The **DMXchange** unit is a 6 input, 12 output DMX512 crosspatch unit. It has an integrated LCD and menu buttons to allow configuration of the entire DMX512 network via the front panel controls.

The **DMXchange** can be programmed to patch any one of 6 inputs to any (or all) of 12 outputs. The data may be DMX512 or any other RS485 based protocol. The **DMXchange** will not patch analog multiplexed signals.

Each DMX512 input can be patched to one or more outputs. However if it is required to merge two or more inputs together, a DMiX Merge unit manufactured by LSC can be easily integrated into the system. The **DMXchange** routes the inputs to the DMiX, then routes the DMiX output to the required physical output.

A powerful menu based operating system provides the following features.

- Naming of all input and output streams. Up to 14 characters per name. This provides sensible identifiers for each input and output rather than just numbers.
- Simple patch, unpatch and repatch facilities allow the patch to be quickly built and maintained.
- Inputs or outputs can be hidden so they don't appear in the patch menus if the stream is unused.
- 32 Preset storage for saving the patch data.
- Each preset can be named for easy identification.
- Password protection to prevent unwanted reconfiguration.
- Battery backed memory for data retention of names, patches and presets.

Screw terminal connections at the back of the **DMXchange** chassis are provided for all DMX input and output connections. Wiring details for all connections are contained on the label found at the rear of the chassis. Six DIP switches are provided for DMX512 input termination when the **DMXchange** is the last device at the end of the DMX cable.

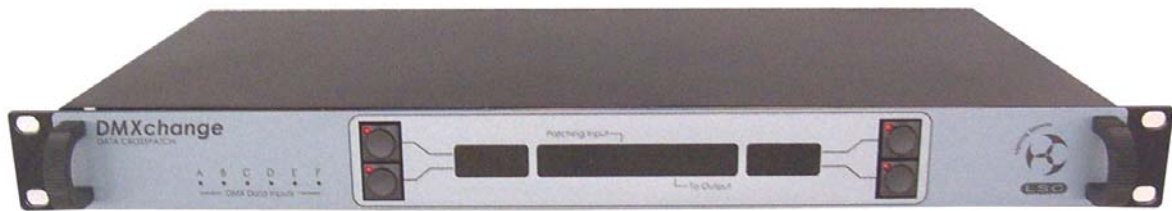
All **DMXchange** DMX data channels have full input to output isolation, input and output EMI filtering and over voltage protection.

1.1 Features

- DMX512A Compatible.
- Configuration from 1 up to 6 inputs.
- Configuration from 1 up to 12 outputs.
- *Any output may be connected to any input.*
- A single input may patch to multiple outputs.
- Any input may be terminated via DIP switch selection.
- Over 72 cross points available to be patched.
- Fully user configurable from the front panel of the unit – no external PC required.
- Each input and output stream may have a 14 character name associated with it to assist the identification of data streams during patching.
- 32 preset patch storage facility.
- Each preset may be named to aid configuration.
- Data may be DMX512 or any other RS422/RS485 based protocol.
- All DMX inputs are individually electrically isolated and buffered.
- All outputs are individually buffered.

2.0 SYSTEM CONFIGURATION

2.1 Operator Interface



The front panel contains the main indicators, buttons and LCD display. Six LED indicators located on the left hand side indicate when data is present on the associated input channel.

The central display area comprises a backlit dot matrix LCD (40 Character x 2 line format) and 4 function buttons each with an integrated LED. The LCD is divided up into three sections by the front panel decal.

The central section is the main display area, where the patch and configuration information is displayed. The left and right areas are used for the interactive menu system. Menu commands are displayed when the user presses the respective buttons, causing the integrated button LED to illuminate. Pressing these menu buttons will advance the user into different screens each with different menu options. If no menu option exists for that screen then the LED in the switch will not glow and the command area will be blank.

Pressing any button will activate the backlighting. When no buttons are pressed for 5 minutes, the backlight will switch off to conserve power.

2.2 Rear Panel Connections

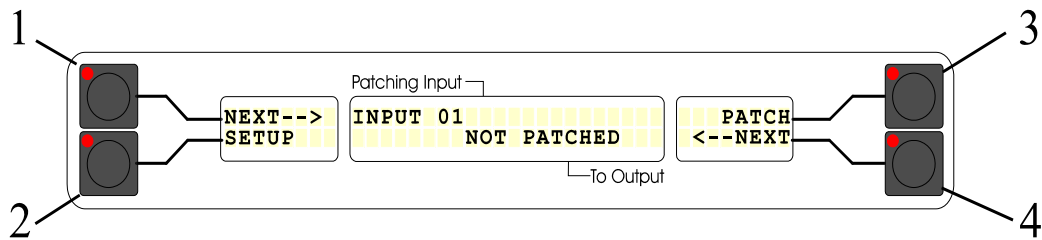


Mains power is applied to the IEC power connector. To the right of the power connector are the DMX512 data input screw terminal connectors for the six DMX input channels. Next to these connectors are six DIP switches which are used for DMX input termination.

The DMX output connectors also use screw terminal connectors for the 12 DMX data outputs. Wiring details for all connectors can be found on the label above the connectors.

All DMX input and output connectors used on the **DMXchange** can be quickly disconnected without using any tools to allow easy equipment replacement and servicing.

2.3 Using the Function Buttons



The LCD is divided up into three viewing windows.

- The centre window is the main display screen and will show relevant data. The patch, passwords, presets etc. are all configured here.
- The left and right windows are the soft menu portions of the screen.

The upper left menu “NEXT-->” corresponds to button 1. Pressing button 1 will perform the function indicated by the menu. Similarly buttons 2, 3 and 4 correspond to the lower left (SET_UP), upper right (PATCH) and lower right (<--NEXT) menus respectively. As this is a soft menu system, the menus will change as their required function changes.

As a further visual aid, if there is a menu option associated with a button, then the LED in the switch will glow. If no menu option is available then the LED will not glow.

2.4 Configuration

The **DMXchange** is fully user configurable. The recommended set-up configuration is as follows:

- The input data stream names.
- Hiding any unused inputs
- The output data stream names.
- Hiding any unused outputs.
- Password if required.
- Create the desired patch.
- Save the patch as a preset and give it a name.

All these functions are carried out using the display and buttons. The following sections describe each of these functions as well the menuing system.

Sign on Menu.

The sign on menu displays

LSC LIGHTING SYSTEMS P/L
DMXchange V1.00 2000

This shows the software version number and will be visible for 5 seconds.

Main Menu

NEXT-->	INPUT 01	PATCH
SET_UP	OUTPUT_02	<-- NEXT

Selecting “NEXT-->” will scroll to the next input and show the current patch for that input.

Selecting “<--NEXT” will scroll to the next patched output for the displayed input.

Selecting “SET_UP” will take you into the configuration menus. See below.

Selecting “PATCH” will take you into the patch menus.

2.4.1 Setting up the Names

Selecting "SET_UP" will display

```
DONE   | Setup system password? | PASSWORD
MORE   | Load or save Presets?  | PRESETS
```

Selecting "MORE" will display

```
DONE   | Set data stream names? | NAMES
MORE   | Clear current patch?   | CLEAR
```

Selecting "NAMES" will display

```
DONE   | Set data stream names   | INPUT
        | Select I/P or O/P?     | OUTPUT
```

At this point, either the input or the output names may be selected and set-up.

Selecting "INPUT" will display.

```
DONE   | Input 01 is shown as:  | EDIT
HIDE   | Name:  INPUT 01       | NXT IN+
```

Pressing "HIDE" will display "Input 01 is HIDDEN". And the stream will not appear in the patch menu. Thus if any streams are unused then hiding them makes patching easier. The Stream can always be changed back to "SHOWN" at a later stage. Press "NXT IN+" to select the next input or "EDIT" to edit the name.

The "EDIT" screen looks like this.

```
SAVE   | Input 01 is shown as: | INC(+)
CURSOR | Edit:  INPUT 01       | DEC(-)
```

The "INC" and "DEC" buttons will change the character indicated by the cursor. Holding down either button will cause continuous scrolling.

The "CURSOR" button will advance the cursor to the right. Note that a maximum of 14 characters are allowed for any name in the **DMXchange**.

The "SAVE" button will save the new name and return to the previous menu.

After a stream has been given a name, this name will appear in place of the input or output reference.

E.g. If Input 01 is named "Prompt Corner" then any menu that would usually display "Input 01" will now show "Prompt Corner" instead.

2.4.2 Setting Up a Password

From the main menu select "SETUP". The display shows.

```
DONE   | Setup system password? | PASSWORD
MORE   | Load or save Presets? | PRESETS
```

Select "PASSWORD". The display shows.

```
SAVE   | Enter new password as | INC(+)
CURSOR | desired: ` _         | DEC(-)
```

Set-up a four character alphanumeric name and press "SAVE".

The display will then show a message to verify if the new password is correct. Respond with “YES” or “NO”. “YES” will return to the main menu. A “NO” will return to the above menu. This password will restrict access to the naming, show / hide menus and patch menus. The password will only be saved 5 minutes after the last press of a button.

2.4.3 Configure a Patch

From the main menu select “PATCH”. The display shows.

Main Menu

```

NEXT--> | INPUT 01          |          PATCH
SET_UP   |          NOT PATCHED | <-- NEXT
  
```

Press “PATCH”

```

NO       | Patch   Input 01      | NXT OUT+
YES      | to      Output 01     | NXT OUT-
  
```

If programmed, the data stream names will appear to allow easy patching. Select the desired output to patch to, and press “YES”. If an output is already patched to another input, a special symbol “(*)” will appear in the output name field. You may patch over this as the software will ask if you want to repatch the output. When all the patching is done for input 01, select the next input (button 1 on the main menu). This will select the next input. Patch outputs as desired to this input. An input may have all outputs patched to it or none at all. This makes the **DMXchange** a very versatile and powerful crosspatching system.

The whole patch is set-up using this method. Each time a patch is done the output of the **DMXchange** will update and it will return to the main menu. In the main menu the patch is viewable by scrolling through the inputs and then scrolling through the outputs.

2.4.4 Unpatching

Unpatching is the opposite of patching. It is the removal of “connections” between inputs and outputs. If an input has outputs patched to it then, the “UNPATCH” menu will appear when the “PATCH” soft button is pressed.

From the main menu pressing “PATCH” will display:

```

NO       | Do you wish to Patch   | UNPATCH
         | or Unpatch this input? | PATCH
  
```

Press “UNPATCH” to disconnect the input from the selected output. A verify menu will appear showing what will be disconnected if you press “YES”. Pressing “PATCH” will take you into the patching menu as shown above. Pressing “NO” will return you to the main menu.

2.4.5 Working With Presets

A preset is a memory of the entire patch. Thirty two Presets may be saved and recalled at any time. Each preset may contain different patch data. Each preset has a 14 character name associated with it. Each name is configurable by the user. When a preset is saved it is stored internally and can be recalled at any time. Recalling a preset will copy the patch data from the preset over the top of the current patch. So if the current patch is required at a later stage, save it as a preset and give it a name.

From the main menu:

Main Menu

```
NEXT--> | INPUT 01          | PATCH
SET_UP   |          NOT PATCHED | <-- NEXT
```

Selecting "SET_UP" will display

```
DONE      | Setup system password? | PASSWORD
MORE      | Load or save Presets?  | PRESETS
```

Selecting "PRESETS" will display

```
CANCEL    | Which action on PRESET | SAVE
NAME      | SAVE, LOAD or NAME?   | LOAD
```

Selecting "SAVE" will display

```
CANCEL    | Save as PRESET 01?    | INC (+)
SAVE      | Named:                | DEC (-)
```

Select the PRESET number to save using the "INC(+)" and "DEC(-)" buttons and press "SAVE". The software will then prompt you to add a name. Press the "EDIT" button, then use the "CURSOR", "INC(+)" and "DEC(-)" buttons to create and then "SAVE" the name.

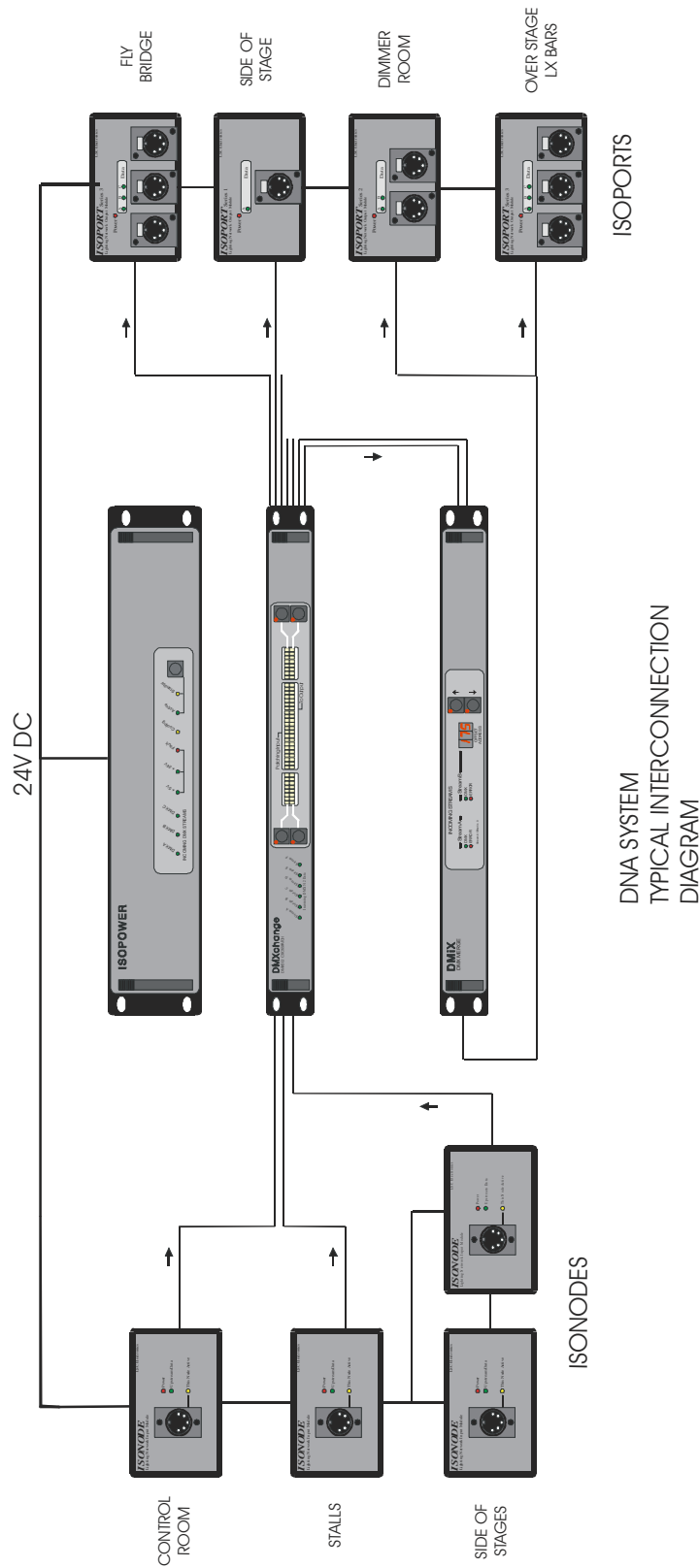
When loading a preset, press the "LOAD" button in the "PRESETS" menu. The display will then prompt you for the Preset number to load. Select the preset number (the name will be displayed if one was recorded) using the "INC(+)" and "DEC(-)" buttons and press "LOAD". The software will ask for verification as the current patch will then be overwritten.

2.5 Power fail conditions

The **DMXchange** is equipped with internal battery backup, which will preserve the memory data in the event of power loss. The data retention time is several years under normal conditions. After a power failure, the **DMXchange** will power up and configure itself to the previously programmed condition. If the memory data has been corrupted for some reason, then a menu will notify you of this. Press OK to continue. All preset data will unfortunately be lost and will have to be re-entered.

2.6 Typical application

The diagram below shows a typical DNA (Distributed Network System) system using LSC products.



3.0 SPECIFICATIONS

DMX512-A compatible	Yes
Number of DMX512 input channels	6
Integrated termination switch per input channel	Yes
DMX512 input data LED per input channel	Yes
Number of DMX512 output channels	12
Galvanic Isolation barrier	1000Volts
Short Circuit output Protected	Yes
EMI Filtered Outputs	Yes
Universal Input Power Supply	90-260VAC
Auto Frequency Input Selection	47-63Hz
Power consumption	Less than 30 Watts
Conforms to CE regulations	Yes
19" Rack Mount Chassis	Yes
Dimensions W x D x H	480mm x 220mm x 44mm (1RU)
Weight unpacked	4kg