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STUDIO ELECTRONICS

DMX16/32/64
Modular Matrix for Digital Audio Signals

User's Manual
Version 6.1

Introduction

The DMX 16/32/64 are modular patchbay systems for digital audio signals, which allow signals of various formats to share one matrix, and even connect to each other using format converting modules.

The following modules are currently available:

MAES	4 I/O	110 ohm transformer balanced
MCO4	4 I/O	75 ohm RCA connectors
MOP4	4 I/O	TOSLINK for SP DIF or ADAT
M2-2	2 I/O	RCA, 2 I/O TOSLINK
MQA		ADAT <> AES / SP DIF convert
MQT		TDIF <> AES / SP DIF converter
MQ4		quad sample rate / format converter

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Any combination of these modules may be assembled into one matrix. Each module has four inputs and four outputs at its rear panel (except MQ4), and, on the other side, connects to the matrix with four inputs (sources) and four outputs (destinations). MQT and MQA convert between four stereo lines and 8 channel formats.

Installation

Facing the unit from the rear, modules count from left to right. The first module on the left connects to sources and destinations 01 to 04.

DMX 16 Frame

1 - 4	5 - 8	9 - 12	13 - 16	
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DMX 32 Frame

1	5	9	13	17	21	25	29	
4	8	12	16	20	24	28	32	

DMX 64 Frame

	1	5	9	13	17	21	25	29
	4	8	12	16	20	24	28	32
	33	37	41	45	49	53	57	61
	36	40	44	48	52	56	60	64

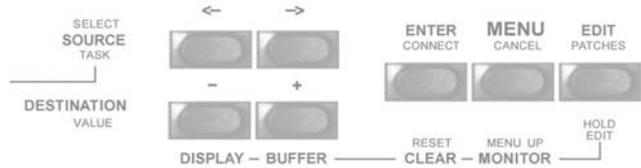
NOTE: Save the internal memory by midi sysex dump to any midi storage before installing new modules. Start the system with a total reset after installation:
Press and hold down the EDIT and ENTER and DISPLAY key, while you power-up the system, wait for the display 'TOTAL RESET'.

Keys and Display

All functions, patches and device names can be programmed from the front panel. Therefore most keys have more than one function. Labels above each key describe the main function. Additional functions are selected by holding down the *EDIT* key while pressing the respective key for the desired function.

For example: The monitor function is selected by holding down *EDIT* while pressing *MONITOR*.

The destinations of the matrix are displayed in the lower line, while assigned sources are displayed in the upper line. The right part of the display *FROM / TO* shows the selected source and destination. All four destinations of the addressed module and the assigned sources are displayed on the left.



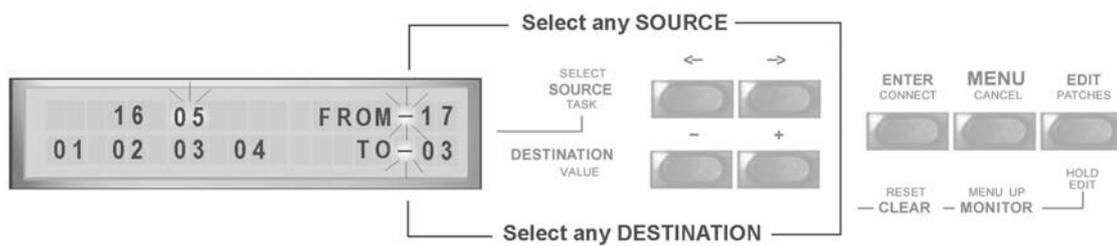
Editing Patches

The DMX unit is ready for editing patches right after power-up.

- Select any *SOURCE* with the \leftrightarrow keys.
- Select any *DESTINATION* with the \pm keys.
- Press *ENTER* to connect the two selected devices.
- Select next *SOURCE* and next *DESTINATION*.

NOTE: Blinking indicates that the selected devices are not connected yet. Still any other source and destination may be selected. If a source is already patched to the selected destination, this source is displayed in the left part of the display.

- *ENTER* changes the patch.
- *CANCEL* (MENU key) keeps the existing patch.



Enter / Edit

Pressing *ENTER* after destination and source are selected, not only programs the patch in the edit buffer, but also changes the matrix. In some cases it may be useful to program several patches before the matrix is changed.

Pressing *EDIT* after a destination and a source are selected, only programs the patch in the edit buffer. In this case the matrix is not changed. An asterisk in the display indicates that the patches in the edit buffer differ from the patches in the matrix hardware. *ENTER* transfers the patches from the edit buffer to the matrix hardware.

- Press *EDIT* after destination and source are selected. An asterisk in the display indicates that the patches in the edit buffer differ from the patches in the matrix hardware.
- Select next source and destination, press *EDIT*.
- Select next, and so on.
- Finally press *ENTER* to transfer all patches to the hardware matrix.



Changing Patches

An existing patch can be changed as follows:

- Select the desired *SOURCE* with the \leftrightarrow keys.
- Select the desired *DESTINATION* with the \pm keys.

NOTE: If a source is already patched to the selected destination, this source is displayed in the left part of the display.
See the picture in "Editing Patches":
destination 03 is already connected to source 05
while the selected source is source 17.

You may overwrite the existing patch, or cancel the new selection.

- Press *ENTER* to overwrite the existing patch.
- Press *CANCEL* (MENU key) to cancel the selection and to keep the existing patch.

Clearing Patches

Clearing a Single Patch

- Select the desired *DESTINATION* with the \pm keys.
- Press and hold down *EDIT*.
- Press *CLEAR* while still holding down *EDIT*.
The assigned source is deleted.

Clearing the Complete Buffer and Matrix

- Press and hold down *EDIT*.
- Press *BUFFER* while still holding down *EDIT* and find the following selection on display:



- Use the \leftarrow KEY to avoid clearing buffer and matrix.
- Press the - KEY to clear both, buffer and matrix.

Display

Display Device Numbers

The display is split in two sections, as long as "DISPLAY DEVICE NUMBERS" is selected. The right part FROM.xx / TO.xx shows the latest selected devices. The left part shows all four destinations of the currently addressed module (lower line) and the assigned sources (upper line).



A screenshot of a digital display showing device numbers. The display is divided into two sections. The upper section shows the number '16' on the left and 'FROM. 16' on the right. The lower section shows the numbers '01 02 03 04' on the left and 'TO. 02' on the right.

Display Device Names

When "DISPLAY DEVICE NAMES" is selected, the names and numbers of the currently selected source and destination are shown.



A screenshot of a digital display showing device names. The display is divided into two sections. The upper section shows the name 'CD PLAYER' on the left and 'FROM. 16' on the right. The lower section shows the name 'DAT RECORDER' on the left and 'TO. 02' on the right.

Changing Display Mode

Changing display mode is only possible in edit mode. If any other task or function is selected, the system must be set to edit mode before the display mode can be changed. Press and release the *EDIT* key once in this case to enter edit mode.

- Hit *EDIT* once, if any other task or function than edit mode is selected.
- Press and hold down *EDIT*.
- Press *DISPLAY*, while still holding *EDIT*, the new display mode is shown.
- Release both keys to return to edit mode.



Monitor

MONITOR offers the possibility to view all patches in the matrix. Whenever a destination is selected, the assigned source is also displayed. Select destinations step by step to display all patches. As soon as the \leftrightarrow keys select any source, the system returns to edit mode, and programming may be continued. Monitor mode can be entered from edit mode or after loading a preset from memory. Monitor mode is also selected after receiving a midi dump.

Entering MONITOR MODE

- Hit *EDIT* once, if any other task or function is selected than edit or load.
- Press and hold down *EDIT*, while pressing *MONITOR*.
A pointer in the display indicates that monitor mode is selected.
- Release both keys.
- Select any destinations and the assigned sources are displayed.



- Hit *EDIT* or select any source with the \leftrightarrow keys to return to edit mode.

MENU

MENU offers the following list of task:

- LOAD loads patches from hardware memory.
- SAVE stores new patches to hardware memory.
- ID NUMBER ID address for remote control with midi sysex.
- MIDI CHANNEL channel number for midi remote with program changes.
- BOOT selects the patch which is loaded on power up.
- DUMP PATCH sends the current patch as a midi sysex dump.
- DUMP MEMORY sends all data in memory as a midi sysex dump.
- SOURCE NAMES to enter source names.
- DESTINATIONS to enter destination names.
- PRESET NAMES to enter preset names.

After you entered the MENU list you may step through the list with the MENU key or select any task with the ←→ keys. *MENU UP* (hold EDIT key and MENU) returns to the first step in the list: LOAD. From load it returns to monitor. You may return to edit mode at any time with *EDIT*.

LOAD

Hit *MENU* once to select LOAD.

- Select the desired preset with the \pm keys.
- Press *ENTER* to load the preset into the edit buffer and matrix hardware.



NOTE: An alert message is displayed if the edit buffer is not saved before you load a preset from memory. You can exit the load function or overwrite the edit buffer.

SAVE

Hit *MENU* twice to select SAVE.

- Select the desired memory location with the \pm keys.
- Press *ENTER* to save the edit buffer to the selected memory location.
- After data is saved, the display changes for name entry.
- Select characters with the \pm keys.
- Move cursor with the \leftrightarrow keys.
- Exit with *ENTER*.



NOTE: You may skip the name entry with *ENTER*.
 While the name editing mode is on, you may clear the name with "hold *EDIT* and *CLEAR*".
 You may cancel the latest entry with *CANCEL* (*MENU* key).

ID Number

Each DMX unit is addressed by an ID number when receiving midi sysex data. This makes it possible, that more than one DMX unit can be remotely controlled by the remote software. To control any DMX unit, the ID number must be the same in hardware and software. It defaults to ID: 01 in hardware and software.

- Hit *MENU*, to enter the menu list.
- Select the task ID NUMBER with the \leftrightarrow keys, or with the *MENU* key.
- Select the desired ID number with the \pm keys.

MIDI Channel

Sending a midi program change command to the DMX unit loads the respective preset from the DMX memory into the edit buffer and matrix hardware. The correct midi channel must be selected.

- Hit *MENU* once, to enter the menu list
- Select the task MIDI CHANNEL the \leftrightarrow keys or with the *MENU* key.
- Select the desired MIDI CHANNEL NUMBER with the \pm keys.

NOTE: The selected ID number and MIDI CHANNEL are stored and present at next power-up.

BOOT

The DMX system can boot with the latest set before power-down or with PRESET 01.

- Hit *MENU* once, to enter the menu list.
- Select *BOOT* with the \leftrightarrow keys, or with the *MENU* key.
- Select the desired *BOOT* condition.

Entering Names

Entering a name is the same for sources, destinations and presets.

- Hit *MENU* once to enter the menu list.
- Select SOURCE NAMES (or DESTINATIONS, or PRESET NAMES) with the $\leftarrow\rightarrow$ keys, or with the *MENU* key.
- Select the desired source number.
- Hit *ENTER* and the display changes for name entry:



- Select characters with the the \pm keys.
- Move cursor with the $\leftarrow\rightarrow$ keys.
- Exit with *ENTER*.

NOTE: You may skip the name entry with *ENTER*.
 While the name editing mode is on, you may clear the name with "hold *EDIT* and *CLEAR*".
 You may cancel the latest entry with *CANCEL* (*MENU* key).

Software Remote Control

All functions of the DMX system can be remotely controlled by software from MAC or PC. Your computer must have at least one midi port. Please read installation manual before you start with any software. Please also read carefully all the details about warranty and copyrights.

PC and Windows

For DMX16 and DMX32 and Windows you may use the DMXremote.exe from the DMX CD, or you may install the JAVA runtime environment from the DMX CD to use the DMXremote.jar JAVA program. For DMX64 and Windows you must install the JAVA runtime environment from the DMX CD to use our DMXremote.jar JAVA program.

MAC and OS 9

For DMX16 and DMX32 you can use the free SoundDiver OEM from EMAGIC from the DMX CD. Unfortunately there is no remote software for DMX64 and MAC OS9.

MAC and OS X

For MAC OS X you may use our DMXremote.jar JAVA program for DMX16 / 32 / 64.

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JAVA
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