



The Strand Archive

Part of an ongoing research project at the University of Exeter Drama Department, UK



MANTRIX® MX

From Strand Lighting catalogue (undated)



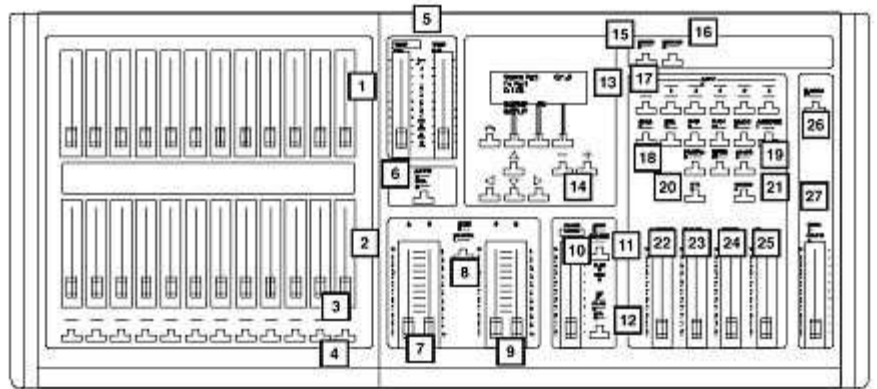
Introduced in 1990

12, 24 & 48 channels

- 2-scene preset manual console with memory
- Ideal for smaller venues which require basic memory capabilities and special effects
- 12, 24 or 48 channels, maximum 512 dimmers
- Lightweight and portable
- LCD menu and data screen with choice of English, French or German
- Optional video terminal display
- Manual, timed and recorded timed crossfades
- Individual bump button per channel with master
- 4 'pages' of submasters/cues
- 24 programmable effects
- Two proportional channel/dimmer patches
- Software selectable multiplex dimmer protocols: DMX, AMX, D54
- MIDI interface for automated effects and system expansion
- Optional memory storage card
- Printer output
- Power supply included
- Can be used for 120 - 240V operation with appropriate power supply



1. Preset A sliders
2. Preset B sliders (in channel mode)
Scene masters (in scene mode)
3. Channel / scene LED displays
4. Channel / scene bump buttons
5. Twin fader time controls
6. Hold control for A sliders
7. A/B masters with LED
8. Channel / scene mode control
9. C/D masters with LED control bar graph
10. Bump Master
11. Channel / scene bump mode
12. Bump to level or solo
13. LCD display window
14. Display cursor and menu controls scene masters (in scene mode)
15. Record mode selector
16. Number lock for keypad
17. Effect controls and LEDs
18. Effect type selectors with LEDs
19. Effect direction controls with LEDs
20. Manual step control for effects bar graph
21. Effects go / stop control
22. Audio sensitivity or MIDI tempo
23. Effect fade in / out time
24. Effect step time
25. Effects master control selector
26. Blackout switch with LED
27. Grand Master



Mechanical & environmental data

Operating temp 32° - 95°F (0° to +35°C)

Relative Humidity 10% - 95% (non-condensing)

Construction Custom designed injection molded case in dark gray, with matching fader knobs and push buttons.

Case The MX control panels fit into an extruded aluminum chassis in matching gray, with four rubber feet.

MX 12

Portable 12 channel memory console with 48 memories (4 pages of 12), 2 presets of manual sliders (which can be used as scene masters), manual and timed playback controls and programmable effects. Complete with power supply.

MX 24

Portable 24 channel memory console with 96 memories (4 pages of 24), 2 presets of manual sliders (which can be used as scene masters), manual and timed playback controls and programmable effects. Complete with power supply.

MX 48

Portable 48 channel double height memory control console with 192 memories (4 pages of 48), 2 presets of manual sliders (which can be used as scene masters), manual and timed playback controls and programmable effects. Complete with power supply.

Operational data

Control Surface Custom-designed injection moulded case in dark grey, with matching fader knobs and push buttons, and an extruded aluminium chassis.

Controls Smooth tracking faders and precise action push buttons are used throughout.

Dimmers The console can control up to 512 dimmers over multiplexed control lines. DMX512, AMX192, D54 and SMX protocols are all included as standard, and are software selectable.

Patch Tables Two software-controlled patch tables are available to link any dimmer or group of dimmers to a single channel. Additionally, every dimmer may be set with a level which is proportional to the controlling channel.

Cue Storage Capacity is related to channel size.

Mantrix MX12: 48 scenes (12 x 4 pages)

Mantrix MX24: 96 scenes (24 x 4 pages)

Mantrix MX48: 192 scenes (48 x 4 pages)

The scenes may be used for sequential or random crossfading, timed crossfades, or for overlapping manual control using the scene master faders.

Memory Retention One month without power (by internal rechargeable batteries.) Mantrix MX can distinguish between being turned off and loss of power. If switched off a series of diagnostic tests will be run before the desk is operational. After power loss the desk is restored to the same state, including running effects and timed fades, as it was prior to power failure.

Library A 64kB memory card can store the entire Mantrix MX memory, or selectively record scenes, effects, patch tables and setup data.

Display An integral 4 x 20 backlit LCD display provides access to setup information, and preview and modification of recorded states and effects. The terminal display option can show output, scene memory, held memory and patch details.

MIDI Interface allows use with other MIDI equipment, such as sequencers for external playback control, or other Mantrix MX consoles, for slave or back-up operations.

Printout An RS232 port is fitted to transmit data to a serial printer terminal. Either the complete contents of the memory can be printed, or individual data can be printed by selecting the relevant menu item. A print queue system with progress indication is included.

Technical specifications

Supply input 18V DC \pm 10% 800mA (earlier models seem to have been 15V DC 800mA)

Audio 10mV - 10V rms into 47kOhm via 5-pin DIN socket

Multiplexed dimmer outputs

DMX: 5-pin XLR - Female (international digital standard - 512 dimmers)

SMX: 5-pin XLR - Female (new Strand digital standard - 512 dimmers) ??earlier models only

AMX: 4-pin XLR - Male (international analogue standard 192 dimmers)

D54: 3-pin XLR - Female (Strand standard analogue multiplex protocol 384 dimmers)

MIDI in: 5-pin DIN socket (180°) thru: 5-pin DIN socket (180°) out: 5-pin DIN socket (180°)

Printer: EIA-RS232 - 25-pin D-type

Standards compliance Power supply is UL and CSA listed

From Strand Lighting Datasheet dated 1990

Standard Operating Features

- MX operates either as a two preset manual control, a submaster-controlled memory system, a sequential memory system with manual or recorded time crossfade, a special effects desk or any combination of the four.
- Flash buttons operate in both the channel and scene mode, and the flash level can be set by the flash master fader, and the flash mode changed from pile-on to "solo" (ie. this channel or memory only).
- In manual mode, the two presets are controlled by individual master faders and fade timers. Both dipless crossfades and lead/lag fades are possible, and the fade progress can be overridden and altered at any time.
- A grand master and black-out facility have master control of the MX output.
- Record mode enables both the top row of faders to adjust the lighting levels, and the channel flash buttons to allocate the memory to any one of the lower row of faders. Thus the lower faders become "scene masters", and fade the channels in proportion to their recorded levels.
- The scene masters can also be used to record the total output of the desk as a "snapshot" of the current lighting, including a combination of other memories.
- The number of memories available is dictated by the number of faders in the lower row multiplied by 4 "pages" of memories. Thus the 12 way MX has 48 memories in total, and the 48 channel system has a capacity of 192 memories.
- Memories assigned to a scene master or a crossfader can be altered either live or blind.
- Memories may be replayed manually or automatically using the C/D crossfaders. The in/out time of the memories is taken from the time faders when the memory is created, and may be edited via the LCD display and pushbuttons.
- LED bar graphs show the progress of fades on the A/B and C/D crossfaders.
- Memories can be performed in sequence, with the next memory being called automatically at the end of the previous fade.
- A 4x20 character, back-lit LCD screen provides details of recorded memories; status of the desk; the ability to set up the system configuration; and to digitally adjust the recorded levels. Control of the channel to dimmer patching, the printer and the memory card is also provided by the LCD display and associated controls.
- A sophisticated effects system offers up to 24 recorded effects on each size of desk, organised in four pages of 6 effects. Up to six effects can be run simultaneously.
- Effect types are chase, build, cycle, flicker, random and sound or MIDI control, with the channel flash buttons being used to identify each channel or scene in each step of a particular effect.
- Effects may be started and stopped individually, and panel controls are always live to control effect speed, fade in/out time, audio sensitivity, MIDI tempo rate and master level. Progressive effects can be changed in direction or set to "bounce" from one end to the other.
- MX is MIDI compatible to enable synthesizers, sequencer PCs, or another MX desk to control the output of the system. With MX working in conjunction with a sequencer PC, it is possible to perform all the lighting cues, fades and effects functions in real time, and replay the lighting remotely from the sequencer via the MIDI link.
- The MIDI link can be used to connect several MX desks together in a master/slave configuration to expand the channel capacity.
- Any number of dimmers, up to the maximum supported by the protocol, may be patched to a control channel, and a proportional level of between zero (inhibit) and 200% may be set. Two separate patch tables can be held in memory at any time.
- The entire system's memory can be cleared, or cue and patch tables may be cleared individually.

Basic Control Elements

Channel Faders

- Two banks of either 12, 24 or 48 faders depending on system size.

- Flash button per channel to flash to a level (or inhibit), or to freeze a channel (or scene) whilst the remainder of the channels are switched off (solo).
- LED indicator to show the status of the channel or scene.
- Write-on label to identify the lights under control of each fader.

Master Panel

- Twin time faders to set the fade time of each preset for manual fades and for timed fades. Times can also be entered digitally.
- Hold button and LEDs "freeze" the settings of the top row of faders so that the faders can be moved for the next fade. Movement of the A/B masters will then progress to the new scene.
- A/B crossfaders control the lighting mix between the top and bottom row of channel faders. In scene mode, the crossfaders are used in conjunction with the top row of faders only, and the "hold" button may be used to recreate a two-preset desk function.
- Channel/Scene button switches the MX between the channel and scene mode, so that the bottom row of faders, and the flash buttons may be used as memory controllers.
- C/D faders control the mix of two memories selected by the LCD display.
- LCD display presents the channel level information present in the memory, the status of fades, patch and effects.
- LCD control buttons provide cursor and data entry facilities for editing and setting up the MX functions and memory levels.
- Flash level fader sets the maximum level the channels or memories will flash to when the flash buttons are pressed. If the flash level is set to zero, the flash buttons will provide an inhibit effect.
- Record button and LED sets the MX into record mode, and enables scenes to be set up quickly on the top row of faders or the combined output, and transferred to a scene master at the press of a flash button. The record mode also enables memories to be set up either live or blind using the LCD display. The LED lights whenever MX is in record mode, and recording can be disabled if required as part of the system setup to prevent unwanted modifications to the lighting.
- Numlock button and LED sets the central block of effects control buttons to operate as numerical keys for direct entry of channel levels, patch data etc.
- Effects active LEDs light when an effect is running. The second line of effects LEDs show which effect is currently selected.
- Effect buttons 1-6 select an effect for recording or playback.
- Effect type buttons select one of the various effect versions available.
- Effects direction buttons control the progression of the selected effect.
- Step button inserts a new step into an effect when recording, and also permits an effect to increment to the next step each time the button is pressed during performance.
- GO/STOP button starts and stops the effects.
- Audio/MIDI fader sets the sensitivity of the bass response of the input sound in audio mode, or the frequency of the MIDI tempo in MIDI mode.
- Step time fader selects the time between steps for the selected effect.
- FX master fader controls the maximum intensity of the channels in the effects.
- Blackout button switches the total output of the desk to zero, and illuminates the red LED as a reminder.
- Grand Master fader controls the total output of the desk.

Optional Equipment

- Memory card copies the contents of the internal memory either totally or selectively.
- Printer provides a printed record of cue level information, effects, system setup, and dimmer patching.



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