

Strand Lighting Specification

I. MANTRIX MX CONTROL CONSOLE

A. GENERAL

1. The control console shall be a microcomputer based lighting system designed specifically for the control of theatrical, television, and live performance dimming systems.

B. CHANNEL CAPACITY

1. The console shall support the processing of up to 512 dimmers on 12, 24 or 48 control channels, arranged in two scenes of manual potentiometers.

C. MECHANICAL

1. The console shall consist of a free standing table top console with LED status indicators and an LCD display. An optional monitor may be used as an additional display device.
2. The control surface shall be constructed of custom designed injection molded panels in dark gray, with matching slider knobs and push buttons. The control surface has been specially designed with slots to reduce lateral slider knob movement and remote contact switches to ensure reliability. The control panels shall fit into an extruded aluminum chassis in matching gray, with four rubber feet.

D. ELECTRICAL

1. The Supply Voltage shall be 18V DC $\pm 10\%$ (from power supply). The Mantrix MX shall be powered through the use of an independent power supply with a molded plug appropriate to the specific geographic locale of use. No internal modification to the system is required to enable operation at 100VAC, 110VAC, 220VAC or 240VAC. Mantrix LX shall be powered with a low voltage DC supply. The low voltage power shall be supplied through a calculator-style female connector with the outer surface positive, the pin hole negative. 110/120VAC, 60Hz AC or 220/240VAC, 50Hz AC power supplies are available on request.
2. The following data input/output connectors shall be provided:
 - a. DMX: 5-pin XLR - Female
 - b. AMX: 4-pin XLR - Male
 - c. D54: 3-pin XLR - Female
 - d. MIDI in/out/thru: 5-pin DIN socket(180°) - Female
 - e. Terminal Display and Printer: EIA-RS232 25-pin D-type socket.
3. The power supply shall be UL listed.

E. OPERATIONAL FEATURES

The console shall provide but not be limited to:

1. Patch Tables: two software-controlled patch tables shall be available to link any dimmer or group of dimmers to a single channel. It shall be possible to set every dimmer with a level (0% to 100%) which shall scale the channel level proportionally.
2. Cue Storage: capacity shall be related to channel size. The 12 channel console shall have 48 scenes (12 x 4 pages), the 24 channel console shall have 96 scenes (24 x 4 pages) and the 48 channel console shall have 192 scenes (48 x 4 pages).
3. Grand Master and Blackout Switch: the entire system output shall be mastered by this potentiometer and switch.
4. Channel Faders: each of the two scenes of 12 [24, 48] control channels shall be identified by a channel number and associated potentiometers which operate over the scale of 0 to 10 (Full).
5. Mode Selector Switches: shall select fader operation between Channel and Scene Mode.
 - a. In Channel Mode, the console shall be operated in two scene manual preset fashion.
 - b. In Scene Mode, the console shall be operated in two scene manual preset fashion through the use of a scene "hold" button utilizing the top set of potentiometers; while the bottom set of potentiometers perform as fully overlapping scene masters, providing proportional control over a maximum of 48 [96, 192] recorded scenes (memories or cues) in four pages.

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6. Flash Switches: a "bump" button with a LED indicator associated with each channel or scene potentiometer shall be provided to flash channels or scenes to a level set by the flash level potentiometer. These switches shall be instructed to operate in a flash, solo, or disengaged (off) fashion. When the console is in record mode, the switches shall be used for rapid recording of either the total live output or simply the contents of the A (top) channel faders into the selected scene master.
7. The console shall include a special effects package that includes the following features:
 - a. Up to 24 special effects in 6 pages with 48 steps each.
 - b. Effect type may be Chase, Build, Cycle, Flicker, Random, Audio or MIDI Input
 - c. Effect direction may be Forward, Reverse, or Bounce
 - d. Up to 6 effects can be active simultaneously. The start, stop, fade time, and running speed (step time) of each effect can be controlled individually.
 - e. The type and direction of any active effect may be altered at any time and is immediately effective without altering the pre-recorded status.
 - f. The fade in and fade out time of each effect is set by the FX fade time potentiometer and adjustable from instant (0) to 2 minutes.
 - g. The FX master potentiometer provided proportional level control over all active effects.
 - h. Effects may be controlled by Audio (sound-to-light) or a MIDI compatible control device.
 - i. Individual steps and their contents may be inserted or deleted.
8. It shall be possible to create and edit Scenes and Effects either Live or in a Blind mode.
9. Playback Controls: playback of channels shall be provided via manual channel faders, memory recorded scenes, the previously described manual scene masters, or through special effects playback.
 - a. The A/B manual split crossfader shall have separate incoming and outgoing preset controllers to provide a dipless crossfade between the two manual or manual and hold preset potentiometers. An associated LED bargraph shall individually track the progress of active up and down manual or timed fades.
 - b. The C/D manual split crossfader shall have separate incoming and outgoing preset controller to provide a dipless crossfade between sequential and/or nonsequential recorded scenes. An associated LED bargraph shall individually track the progress of active up and down manual or timed fades.
 - c. The Time fader potentiometers shall enable the A/B and/or the C/D crossfader to perform split timed fades between 0 (manual) and 10 minutes. timed crossfades may be stopped, paused and continued, manually overridden or reversed at any time prior to fade completion. When simply used to time the A/B crossfader, a digitally addressed time fader shall be available for the C/D crossfader, allowing independent timed events on the two sets of crossfaders.
 - d. The special effects playback controls shall allow recording of 24 effects in 6 pages with 48 steps each. Up to 6 simultaneous effects can be running concurrently.
10. Setup and Configuration functions for the console shall include the following functions:
 - a. The language configuration may be English, French or German.
 - b. Contrast and backlight control of the LCD display.
 - c. Record Enable or Record Lock.
 - d. The external input may be selected to operate from a sound-to-light or MIDI interaction.
 - e. The control protocol may be selected between DMX, AMX192 or D54.
 - f. Analog multiplex output voltage may be scaled for long control cable runs.
11. An integral 4 row by 20 column (80 character) backlit LCD display shall be provided to access setup information plus create, preview, and modify recorded scenes and effects.
12. The console shall be able to selectively clear, print or load show data (with the optional printer and memory card).
13. The console shall maintain its memory for one month without power (by internal rechargeable batteries.) The console shall distinguish between being turned off and loss of power. If switched off a series of diagnostic tests shall be run before the desk is operational. After power loss the shall be restored to the same state, including running effects and timed fades.
14. Two control systems may be joined through their MIDI connections to provide a tracking backup system.
15. User and field service personnel oriented diagnostic tests and an electronic fault log shall be provided.

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F. WEIGHTS AND DIMENSIONS

1. The 12 channel console shall be no larger than 25.6" (651.0mm) W x 11.2" (285.0mm) D x 2.6" (65.0mm) H and shall weigh no more than 9.5lb (4.3kg).
2. The 24 channel console shall be no larger than 35.9" (912.0mm) W x 11.2" (285.0mm) D x 2.6" (65.0mm) H and shall weigh no more than 2.5lb (5.7kg).
3. The 48 channel console shall be no larger than 32.4" (822.0mm) W x 21.4" (545.0mm) D x 5.4" (137.0mm) H and shall weigh no more than 19.6lb (8.9kg).

G. OPERATING ENVIRONMENT

1. The console should be operated under general office level conditions, with a minimum of dust.
2. The maximum operating ambient temperature shall be 32° - 95°F (0° - 35°C).
3. The relative humidity shall be 10% - 95% (non-condensing).

H. INCLUDED FURNISHINGS

1. (1) Power supply
2. (1) 25' DMX control cable

I. PERIPHERAL EQUIPMENT

1. A 64kB memory card shall store the entire console memory. The console shall selectively load scenes, effects, patch tables and setup data.
2. One 14" monochrome terminal display.
3. Printer with cable.

J. ACCESSORIES

1. A vinyl cover shall be available for the console.

K. SUPPLY THE FOLLOWING:

Qty.	Cat No.	Description
#	64113	Mantrix MX12, 12 Channel Console
#	64125	Mantrix MX24, 24 Channel Console
#	64149	Mantrix MX48, 48 Channel Console North American style psu
#	95090	DMX output cable, A5M/A5F, 25' (7.6m)
#	95091	DMX output cable, A5M/A5F, 50' (15m)
#	95092	DMX output cable, A5M/A5F, 100' (30m)
#	95521	AMX output cable, A4F/A4M, 12' (3.6m)
#	95524	AMX output cable, A4F/A4M, 25' (6m)
#	95522	AMX output cable, A4F/A4M, 50' (15m)
#	95523	AMX output cable, A4F/A4M, 100' (30m)
#	95155	Terminal display, monochrome 14"
#	66114	Memory card, 64kB
#	95490	Printer with cable
#	66036	Dust cover, Mantrix MX 12
#	66037	Dust cover, Mantrix MX 24
#	66038	Dust cover, Mantrix MX 48