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# CM-80 Monitor

# CM-80E Monitor/ Exciter Supply

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# INSTRUCTION MANUAL

 **USL, Inc.**

Quality Cinema Products

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## One Year Limited Warranty



Ultra\* Stereo Labs warrants that each product manufactured by it will be free from defects in material and workmanship under normal usage for a period of one year after its purchase new from an authorized dealer. Our obligation under this warranty is limited to repairing or replacing any product or component which we are satisfied does not conform with the foregoing warranty and which is returned to our factory, freight paid, or serviced by one of our authorized contractors. The Foregoing Warranty is Exclusive And in Lieu of All Other Warranties, Whether Expressed or Implied. Such warranty shall not apply to any product or component (A) repaired or altered by anyone other than Ultra\* Stereo Labs or an authorized service contractor; (B) tampered with or altered in any way or subjected to misuse, negligence or accident or (C) which has been improperly connected, installed or adjusted otherwise than in accordance with Ultra\* Stereo Labs instruction.



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**Please record the following information for your records:**

**Model:** \_\_\_\_\_ **Serial Number:** \_\_\_\_\_

**Date of Purchase:** \_\_\_\_\_ **Purchased from:** \_\_\_\_\_

# Introduction

**Please read this entire manual before commencing your installation.**

The ULTRA\*STEREO CM-80 Projection Booth Monitor and CM-80E Monitor/Exciter Supply have been designed for high performance, ease of use, and years of trouble free service. Installation and setup of the monitors has been considerably simplified. No special tools are required. The built-in VU meter and test jack gives the technician immediate information about the status of the processor and all power amplifiers. All controls necessary for daily operation of the processor are easily accessible on the front panel.

The components that make up the CM-80/80E monitors are of computer grade for reliability. All front panel controls are individually sealed for long life. All ULTRA\*STEREO equipment has been "burned-in" at the factory for an extended period in order to eliminate the possibility of premature failure.

Unpack the unit carefully. If the container has been damaged, thoroughly inspect the equipment to make certain that there is no hidden damage. File a claim immediately with the carrier if any damage is found. Also advise your dealer or the factory.

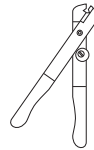
## TOOLS REQUIRED



Trimpot  
adjustment  
tool



DC voltmeter



Wire strippers



No. 2 phillips  
screwdriver

**You Will Need to Supply the Following Materials:**

- Shielded audio cable for connecting the CM-80/80E to the cinema processor and power amplifier outputs.
- Four 10-32 x 1/2" screws to mount the CM-80/80E in the audio equipment rack.
- For the CM-80E only - 16ga. two conductor wire for lengths up to 15ft., 14ga. up to 30ft.

**FEATURES****All CM-80 and CM-80E monitors have the following standard features:**

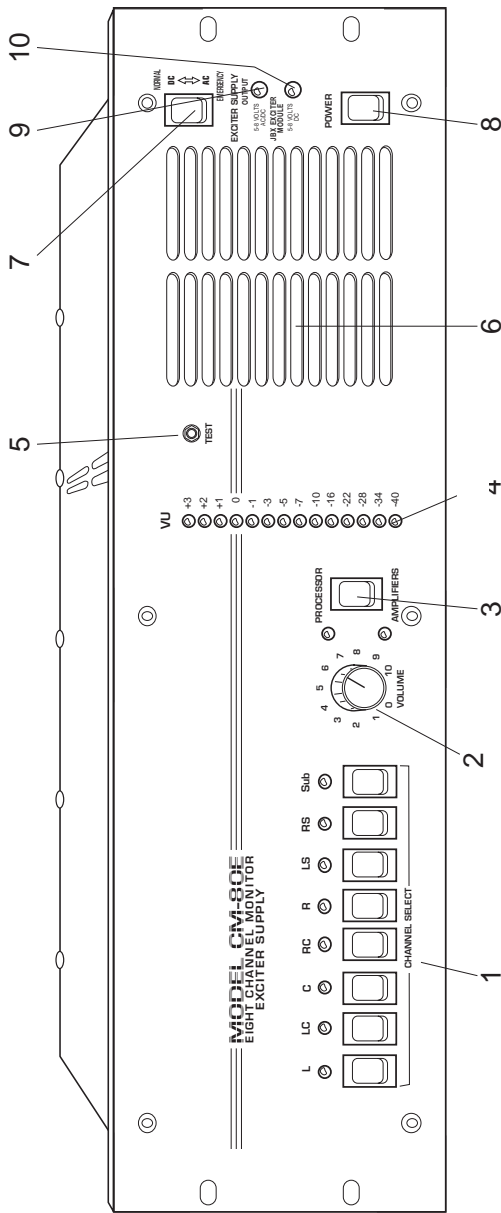
- 8-Channel Monitoring - allows you to monitor both the processor and power amplifier outputs to Left, Left Center, Center, Right Center, Right, Surround Left, Surround Right and Subwoofer channels, in any combination.
- Input levels from processor and power amplifier can be adjusted independently - no huge level jumps when switching between processor and power amplifiers.
- Bargraph display may be calibrated to the reference level for your theatre - the projectionist can see auditorium levels instantly.
- Designed to work with Bi or Tri- Amplified Sound Systems to monitor the high, mid & low frequency outputs from the left, left center, center, right center and right channels.

**The CM-80E has the following additional features**

- Plug-in DC Regulated Exciter Supply module – the entire Exciter Supply may be replaced in seconds.
- Front panel bypass mode switch that switches the Exciter Supply to a 5 or 8 volt AC power source in the event of a failure of the DC Exciter Supply.
- Front panel status LEDs indicate power going into and coming from the Exciter Supply module.

# Configuration

## CM-80/80E Front Panel

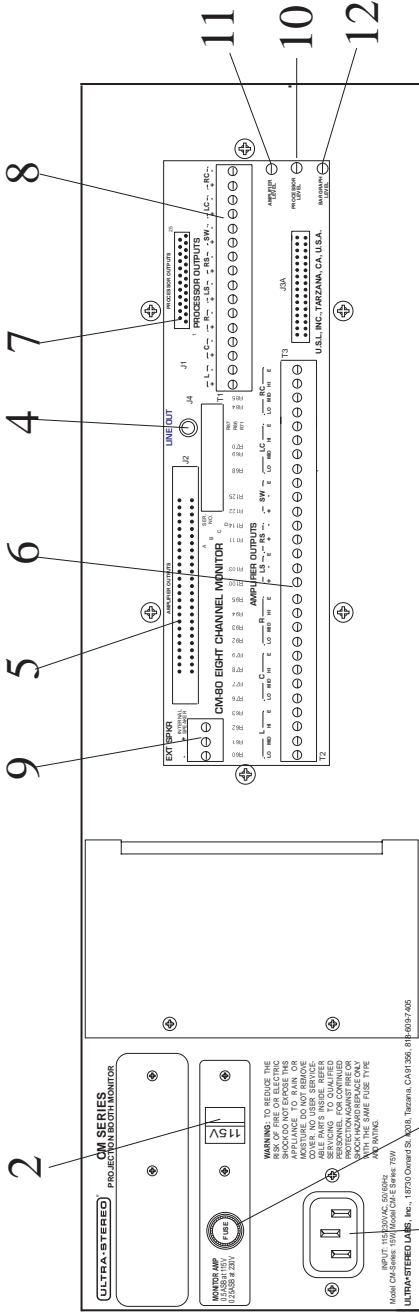


- 1. CHANNEL SELECT Buttons** - pressing a Channel Select button causes the corresponding LED to illuminate and the signal from that channel to be monitored. Any combination of 8 channels may be selected.
- 2. VOLUME CONTROL** - controls the volume of the internal or external speaker. The volume control has no effect on VU Bargraph display.

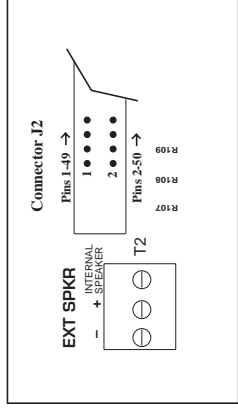
3. **PROCESSOR/AMPLIFIER Selector Switch** - selects either the inputs from the cinema processor or power amplifiers for monitoring (see 5-8, pg. 8).
4. **VU Bargraph** - displays the level of the selected channels. The VU Bargraph may be calibrated by the rear panel trim adjustment (see 12, pg. 8). The VU Bargraph operates independently of the volume control (2).
5. **TEST Jack** - permits monitoring of the audio output of the CM-35/CM-35E. Inserting a mono 1/4" phone plug here disables the internal speaker and routes the audio output to the Test Jack. Do not connect any device here with less than  $8\Omega$  impedance.
6. **Internal Speaker**
7. **NORMAL/STANDBY Switch** - when set to "Normal" routes the Exciter Supply module (pg. 10) (13) DC output to the Exciter Supply output terminals (pg. 10) (12). In "Standby" mode it routes 8 or 5 VAC Bypass power to the output terminals.
8. **POWER Switch**
9. **AC EMERGENCY - DC NORMAL Indicator** - this LED monitors the output of the exciter supply. When the NORMAL/STANDBY switch is set to NORMAL, it monitors the output of the Exciter Supply module; when in STANDBY mode, it monitors the AC Exciter Supply output.
10. **DC OUTPUT Indicator** - this LED illuminates when the DC Exciter Supply module is installed and working properly.



# CM-80/80E Rear Panel



**Some versions have the fuse and the line switch in different locations.**



Please Note: Connectors J2 & J3A are numbered 1-49 on the top and 2-50 on the bottom. J1 is numbered as shown.

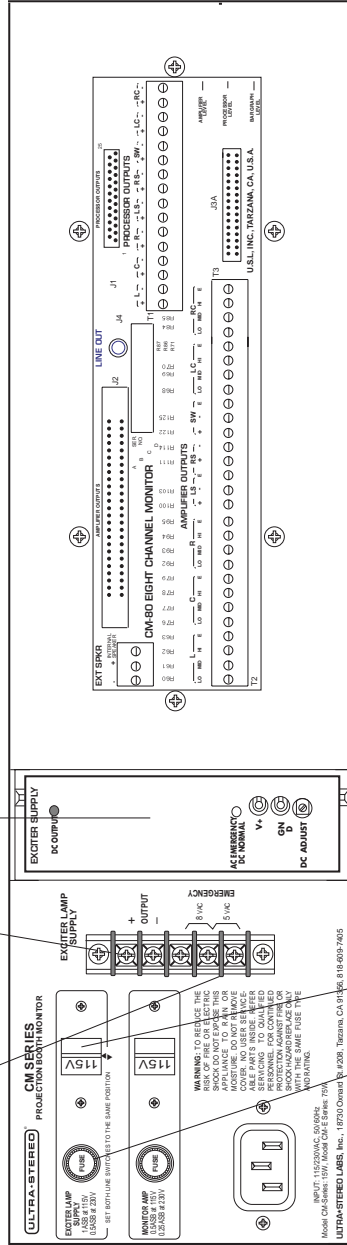
1. **AC Input**
2. **Line Voltage Selector**
3. **Main Fuse** - 1/2 Amp for the CM-35 (1Amp for the CM-35E with single fuse and line switch).
4. **Line Out** - The Left, Center and Right channel signals are summed from processors and fed to this RCA jack. Output level: nominal 100mv.
5. **Amplifier Outputs** - The amplifier outputs may be connected through a standard 50 conductor flat cable and connector to J2. The pin assignments are as follows: 1. Lo left; 3. Mid left; 5. Hi left; 7. Lo center; 9. Mid center; 11. Hi center; 13. Lo right; 15. Mid right; 17. Hi right; 19. Left surr. +; 21. Left surr. -; 23. Right surr. +; 25. Right surr. -; 27. Subwoofer +; 29. Subwoofer -; 31-37 GND.; 39. Lo Left center; 41. Mid Left center; 43. Hi Left center; 45. Lo Right center; 47. Mid Right center; 49. Hi Right center.
6. **Amplifier Outputs** - connect these terminals to the power amplifier speaker outputs corresponding to Left, Center, Right, Left and Right Surrounds, and Subwoofer. Left, Center and Right channels have high and low frequency inputs for use with bi-amplified systems.
7. **Processor Outputs** - The processor outputs may be connected through a 25 pin "D" connector to J1. The pin assignments are as follows: 2. Left +; 3. Left center -; 5. Center +; 6. Right center -; 8. Right +; 10. Surr. Left -; 11. Surr. Right -; 12. Subwoofer -; 14. Left -; 16. Left center +; 17. Center -; 19. Right center +; 20. Right -; 23. Surr. Left +; 24. Surr. Right +; 25. Subwoofer +.
8. **Processor Outputs** - connect these terminals to the cinema processor outputs corresponding to left, center, right, left and right surrounds, and subwoofer.
9. **Monitor Amp Out/Internal Speaker In** - the Monitor Amp Output is linked to the Internal Speaker here. To connect an external speaker, remove this link and connect the + and - terminals to the external speaker + and - inputs. **WARNING:** Do not connect any device here with less than 8Ω impedance.
10. **Processor Level** - this trimpot adjusts the level of the input lines coming from the processor.
11. **Amplifier Level** - this trimpot adjusts the level of the input lines coming from the power amplifiers.
12. **Bargraph Level** - this trimpot adjusts the sensitivity of the front panel VU Bargraph meter.

# CM-80E Rear Panel

- 11. **Emergency (Standby) Voltage Selector** - selects either 8 or 5 volts for the Emergency (Standby) output voltage.
- 12. **Output** - Exciter Supply output terminals.
- 13. **Exciter Supply Module.**
- 14. **Exciter Main Fuse 1A SB.**
- 15. **Exciter Supply Line Voltage Selector.**

11 12 13

14 15



Some versions have a single fuse and line switch.

# Installation

## Mount the CM-80/80E

The ideal place for the CM-80 Monitor is in the sound rack or projector console between the stereo processor and power amplifiers. The terminal blocks on the rear of the CM-80 are designed to facilitate the application of stripped and tinned wire leads.

## Monitor Hookup

Follow the illustration on page 12 to connect the CM-80 and make sure all cable shields are tied at only one end to their ground wire to prevent hum. The terminals on the CM-80/80E are such that no spade lugs are necessary. Use a high quality cable such as Belden #8451. Set the "Processor Level" and "Amplifier Level" trim adjustments to their mid positions. For installations where speakers are **not bi or tri-amplified**, connect the left, center, and right amplifier inputs to their 'Low' monitor input terminals. If you will be using the CM-80/80E to drive an external speaker, remove the jumper that connects the Speaker + terminal to the INT SPKR terminal.

## Split Surround Processors

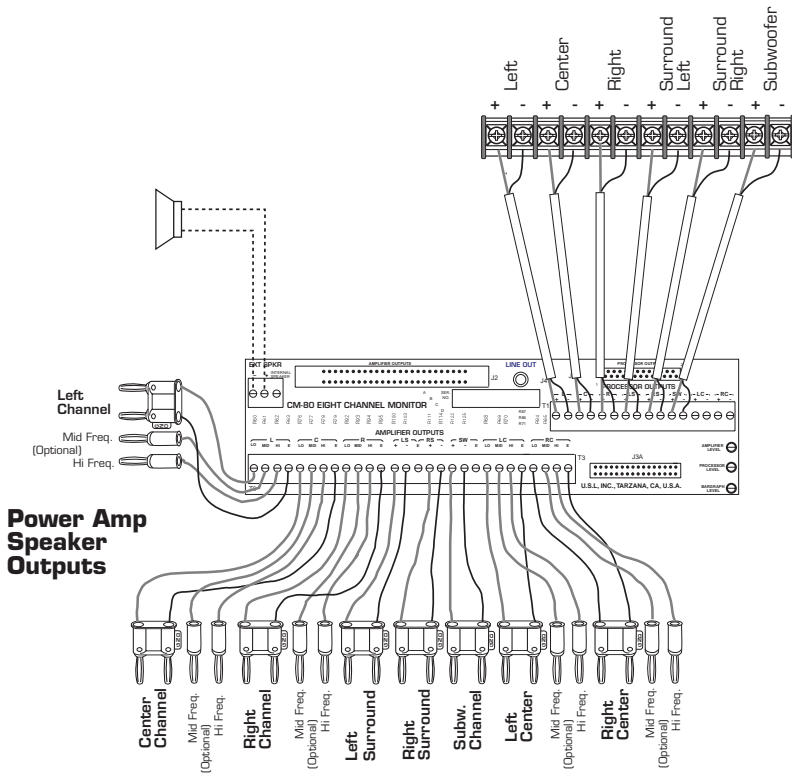
For connection to split-surround processors such as the Ultra\*Stereo model JS-230, connect the Left and Right processor outputs to the CM-80 Surround Left and Surround Right inputs, respectively.

## Setting Levels

Run a pink noise test film such as Ultra\*Stereo Type 1 or Dolby® Cat. 69. Set the processor main fader and power amplifier levels so the house speakers are playing back at the normal listening level. Set the Processor/Amplifier switch to Processor and note the reading on the front panel bargraph meter. Next, set the Processor/Amplifier switch to Amplifier, and adjust the Amplifier Level trimpot on the rear of the unit for the same bargraph reading.

# CM-80/80E Monitor Hookup

## Processor Outputs



**Note:** on some installations, it may be advisable to connect only one '-' amplifier speaker terminal to the CM-80/80E to prevent ground loops. Do not connect the '-' amplifier speaker terminal to the CM-80/80E if the amplifier is in the "bridge" mode.

If there is an unusually large difference between the processor and amplifier levels it may be necessary to go back and adjust the Processor Level trimpot to match levels. Next, set the Bargraph Level trimpot on the rear of the unit so the front panel bargraph meter reads approximately 0VU.

With the bargraph meter set to read 0VU at normal auditorium listening levels, the projectionist can tell at a glance if a film is playing at the correct level.

### Exciter Supply Setup

The Exciter Lamp Supply is built on the JBX printed circuit board, which plugs into the back of the CM80E. This electronic switching supply is adjustable from 3.7 to 8.5 VDC with a maximum current output of 7 amps.

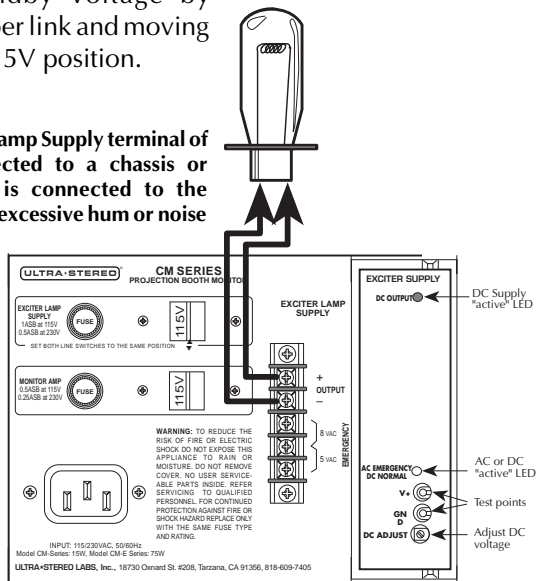
Use a minimum of 16ga. cable no more than 15 feet in length (14ga. cable for up to 30 feet) to connect the Exciter Lamp to the Exciter Lamp Supply Output terminals. Make sure the negative (-) contact of the exciter lamp does not contact the projector chassis or any other possible common ground.

Set the AC Standby voltage by loosening the jumper link and moving to either the 8V or 5V position.

**If the negative Exciter Lamp Supply terminal of the CM-80E is connected to a chassis or common ground, or is connected to the projector chassis, then excessive hum or noise may result.**

Connect the Exciter Lamp only to the '-' output terminal on the Exciter Lamp Supply terminal block.

Some versions have a single fuse and line switch.



# Specifications

## Inputs

**Processor:** Eight inputs corresponding to Left, Left Center, Center, Right Center, Right, Surround Left, Surround Right and Subwoofer. Input impedance is 10k $\Omega$ .

**Power Amp:** Seventeen inputs corresponding to Left Lo, Mid & Hi, Left Center Lo, Mid & Hi, Center Lo, Mid & Hi, Right Center Lo, Mid & Hi, Right Lo, Mid & Hi, Surround Left, Surround Right and Subwoofer. Input impedance is greater than 50k $\Omega$ .

## Outputs

The monitor output may be routed to either the CM-80/80E internal speaker or to the external speaker terminal via a removeable jumper on the rear of the unit. Maximum output 10 Watts RMS. Minimum output impedance: 8 $\Omega$ . Line output: nominal 100mv.

Exciter Supply Output (CM-80E only)

DC output: 3.7 - 8.5VDC. 7A maximum.

AC output: 8 or 5VAC, selectable.

## Controls

**Front Panel:** Individual push button switches for each input channel toggle on and off so that channels may be monitored in any combination. An LED indicator illuminates when the corresponding channel is selected. A volume control sets the speaker output level and works independently of the front panel VU bargraph meter. A push button switch with corresponding LED switches monitoring between the Processor and Amplifier inputs. A 14 segment bargraph VU Meter indicates the input level from -40 to +3VU. On the CM-80E the Normal/Standby switch routes either the normal DC or emergency AC

voltage to the Exciter Supply output terminals.

**Rear Panel:** Three Trimpots adjust the Processor, Amplifier and VU Meter input levels.

**CM-80E Exciter Supply module only:** A 15 turn trimpot adjusts the Exciter Supply DC output from 3.7 to 8.5VDC. LED's indicate DC output and AC Emergency/DC Normal status.

## Power Requirements

A two position switch on the rear of the CM-80/80E selects 106 ~ 125 VAC or 212 ~ 250 VAC, 50-60 cycles.

CM-80: approximately 15 watts.

CM-80E: approximately 52 watts.

## Construction

The CM-80 Monitor and CM-80E Monitor/Exciter Supply are constructed of steel to minimize hum pickup and noise radiation from the Exciter Supply module. Gold plated card edge connectors and 1% precision components are used throughout. The overall size of the unit is 5.22" x 19" x 8". The CM-80 and CM-80E are designed to mount in a standard rack frame or cabinet.

	<b>CM-80</b>	<b>CM-80E</b>
Weight:	10 lbs.	17 lbs.
Shipping Weight:	12 lbs.	19 lbs.



