LMS 242

Loudspeaker Management System

User Manual

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER - SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk to persons.

The exclamation point, within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Important Safety Instructions

1. READ THESE INSTRUCTIONS

All the safety and operating instructions should be read before the product is operated.

2. KEEP THESE INSTRUCTIONS

The safety and operating instructions should be retained for future reference.

3. HEED ALL WARNINGS

All warnings on the product and in the operating instructions should be adhered to.

4. FOLLOW ALL INSTRUCTIONS

All operating and use of instructions should be followed.

5. DO NOT USE THIS APPARATUS NEAR WATER

Do not use the product near water. For example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.

6. CLEAN ONLY WITH DRY CLOTH

Unplug the unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

7. DO NOT BLOCK ANY VENTILATION OPENINGS

Slots and openings in the cabinet back or bottom are provided for ventilation, to ensure reliable operation of the limit and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or similar surface. This product should never be placed near or over a radiator or heat source. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacture's instructions have been adhered to.

8. DO NOT INSTALL NEAR ANY HEAT SOURCES
This Product should be situated away from heat sources such as radiators, stoves, or other products (including amplifiers) that produces heat.

9. DO NOT DEFEAT THE SAFETY PURPOSE OF THE POLARIZED OR GROUNDING-TYPE PLUG
A Polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prongs are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. PROTECT THE POWER CORD FROM BEING WALKED ON OR PINCHED PARTICULARLY AT PLUGS, CONVENIENCE RECEPTACLES, AND THE POINT WHERE THEY EXIT FROM THE APPARATUS.

11. ONLY USE ATTACHMENTS/ACCESSORIES SPECIFIED BY THE MANUFACTURER.

12. USE ONLY WITH CART, STAND, TRIPOD, BRACKET, OR TABLE SPECIFIED BY THE MANUFACTURER, OR SOLD WITH THE APPARATUS. WHEN A CART IS USED, USE CAUTION WHEN MOVING THE CART/APPARATUS TO AVOID INJURY FROM TIP-OVER.
Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury to someone, and serious damage to the appliance. A unit and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

13. UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME.
For added protection for this unit during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.

14. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL. SERVICING IS REQUIRED WHEN THE APPARATUS HAS BEEN DAMAGED IN ANYWAY, SUCH AS WHEN THE POWER SUPPLY CORD OR PLUG IS DAMAGED, LIQUID HAS BEEN SPILLED OR OBJECTS HAVE FALLEN INTO THE APPARATUS, THE APPARATUS HAS BEEN EXPOSED TO RAIN OR MOISTURE, DOES NOT OPERATE NORMALLY, OR HAS BEEN FROPPED.

15. WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

16. APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING AND NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.

Table of Contents

1.0 Introduction

The LMS 242 is a digital loudspeaker management system designed for the touring or fixed sound instal ation markets. The absolute latest in available technology is utilized with 40-bit floating point processors and high performance 24-bit Analog Converters. The high-bit DSP prevents noise and distortion induced by truncation errors of the commonly used 24-bit fixed-point devices. A complete set of parameters include I/O levels, delay, polarity, 8 bands of parametric EQ per channel, 31 bands of GEQ per input, multiple crossover selections and full function limiters. Precise frequency control is achieved with its 1 Hz resolution. Inputs and outputs can be routed in multiple configurations to meet any requirement. The LMS series can be control ed or configured in real time on the front panel or with the intuitive PC GUI accessed via the RS-232, USB or Ethernet interface. Software upgrade for CPU and DSP via PC keeps the device current with newly developed algorithms and functions once available. Multiple setup storage and system security complete this professional package.

Shipped contents:

- LMS Unit
- User Manual
- LMS Software CD
- Power Cord

2.0 Features

> Up to 2 Inputs and 4 Outputs with flexible routing

> 40-bit floating point DSP

> 96kHz Sampling Rate

> High Performance 24-bit A/D Converters

> 1 Hz Frequency Resolution

> 8 Parametric Equalizers for each Input and Output

> 31 Bands GEQ for each Input

> Multiple Crossover types with Ful Function Limiters

> Precise Level, Polarity and Delay

> CPU and DSP upgrade via PC

> Individual Channel Buttons with Linking capability

> 2-Line x 16 Character Backlit LCD Display

> Ful 5-segment LED's on every Input and Output

> Storage of up to 30 Preset Setups

> Security Lock

> Ethernet (Optional), USB and RS232 Interface for PC Control

3.0 Front Panel Functions
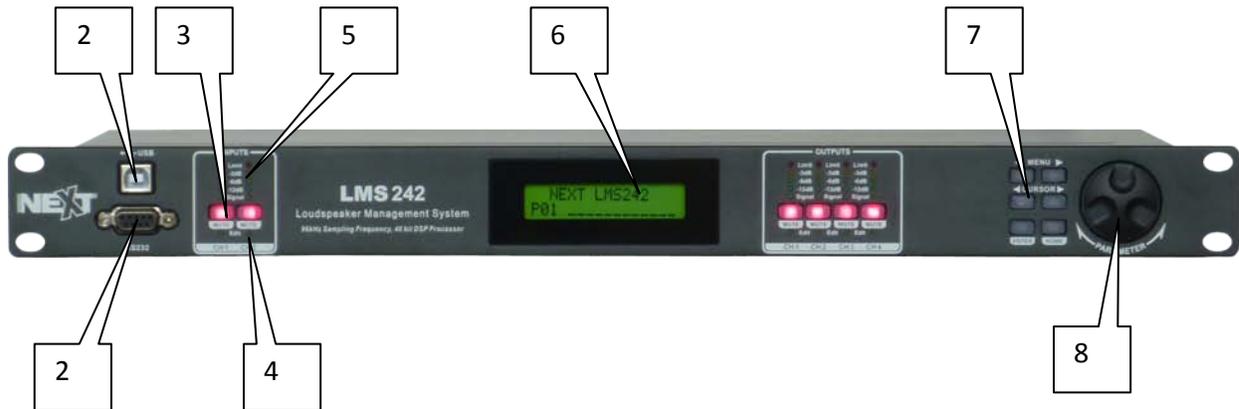
1. **USB** – a standard Type B USB connector. Device driver from the provided software CD must be instal ed prior to usage.

2. **RS232** – a standard female DB9 socket. A straight through cable is required for PC connection.

3. **Mute (Channel Menu) Buttons** – Mute or un-mute input and output channels. When an input channel is muted, a red LED will come on for indication.

   When the <<**Menu** or **Menu**>> key is held down, the **Mute Buttons** selects the corresponding channel for the LCD menu display and is acknowledged by a green LED below the button. The last modified menu wil be displayed on the LCD. Multiple channels can be linked or unlinked by pushing the desired channels. This eases programming for same parameters across multiple channels. Multiple Inputs can be linked together and multiple outputs can be linked together. Inputs and Outputs are linked separately.

4. **Channel Menu LED** – Indicates the activated channels for data modification.

5. **Peak Level LED** – Indicates the current peak level of the Signal:

Signal, -12dB, -6dB, -3dB, Over/Limit. The Input **Limit** LED references to the device's maximum headroom. The Output **Limit** LED references to the threshold of the output limiter.

6. **LCD** – Shows al the necessary information to control the unit.

7. **Menu Buttons** – There are 6 menu keys: **<<Menu** (Menu Down), **Menu>>** (Menu Up), **<<Cursor** (Cursor Down), **Cursor>>** (Cursor Up), **Enter/Sys/Speed**, **Exit**. The functions of each key is explained below:

<<Menu: Go to previous menu screen. Holding this button down while pressing **Mute** key wil go to the specify channel menu.

Menu>>: Go to next menu screen. Holding this button down while pressing **Mute** key will go to the specify channel menu.

<<Cursor: Go to previous cursor in the menu screen.

Cursor>>: Go to next cursor in the menu screen.

Enter/Sys/Speed: Enter is used only in the **System Menu** to proceed with selected actions.
Sys enters the **System Menu** from the main menu.
Speed modifies delay and frequency (1 Hz resolution mode) data values by 100X.

Exit: Exit to the **Main Menu**.

8. **Rotary Thumb Wheel** – Changes parameter data values. The wheel has travel velocity sensing which ease large incremental data modifications. For modifying delay and frequency (1 Hz resolution), pressing the **Speed** key simultaneously will increment/decrement the data value by 100X.

4.0 Rear Panel Functions

1. **Main Power** – Connects via a standard IEC socket. A compatible power cord is supplied with the unit. The voltage input is 90-240VAC, 50-60Hz.

2. **Main Fuse** – T2.5A-250V. Slow blow type.

3. **Power switch** – Controls power On/Off.

4. **Ethernet** (Optional)– RJ45 connector for Ethernet control. The device should be connected to a router/switch/hub via a straight through CAT-5 cable.

5. **Analog Inputs and Outputs** – Separate 3-pin connectors are provided for each audio input and output. The device's output stage employs the balanced impedance topology. Al I/O connectors have pin 1 as ground (shield), pin 2 as + and pin 3 as -.

5.0 Powering Up the Device

☐ After powering up the unit, the following initialization screen is displayed on the LCD:
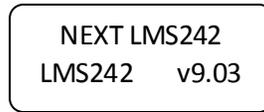
```
NEXT LMS242
LMS242     v9.03
```

☐ The initialization process takes several seconds and during that period the unit boots and displays the device model and firmware version.

☐ After the initialization process is finished the LMS displays its main screen:
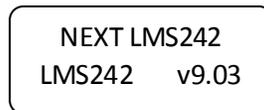
```
NEXT LMS242
LMS242     v9.03
```

☐ The screen shows the current program number and program name assigned to the unit. If the program number is 31 and the name is MEMORY, it means that no program is assigned, the last data before previous power down is recalled instead.

☐ Now the LMS is ready to operate.

6.0 Operating the Channel Menus

Channel Linking – While holding down the <<**Menu** or **Menu**>>, more than 1 channel from the same group (Input or Output group) can be selected to link the channels together. The green LEDs below the **Mute** buttons are lit for the linked channels. Any modification of the data for the selected channel wil be applied to the linked channels as well. To cancel the linking, simply deselect the desired channel while the <<**Menu** or **Menu**>> key is stil pressed, or just press the **Exit** key to deselect al channels.

6.1   Input/Output Signal

LEVEL:
The level (or gain) ranges from -40.00dB to +15.00dB in 0.25dB steps.

```
I1:_____ Signal
LEVEL:0.00dB
```

POL:
The polarity (or phase) can be normal (+) or inverted (-).

```
I1:_____ Signal
POL:+
```

DELAY:
The maximum delay permitted is 650ms, in steps of approximately 10us. It can be displayed in ms, ft or m. The time unit of the delay is set in the **System Menu**. Please refer to page 21 for more details.

```
I1:_____ Signal
DELAY:000.000ms
```

6.2 Input/Output Equalizer

EQ#:

Each input channel has 8 bands of equalization. This control selects one of the 8 available bands.

```
I1:_____ EQ1
EQ#:1
```

BYPASS:

This control will un-bypass (Off) or bypass (On) the currently selected band.

```
I1:_____ EQ1
BYPASS:Off
```

TYPE:

The 5 types of EQ that can be used are: parametric (PEQ), low shelf (LO-SHF), high shelf (HI-SHF), 1st degree al -pass (AP-1), and 2nd degree all-pass (AP-2).

```
I1:_____ EQ1
TYPE:PEQ
```

FREQ:

The EQ center frequency ranges from 20Hz to 30kHz in either 1Hz steps or 1/36 octave steps. The frequency steps can be selected in the **System Menu**. Please refer to page 21 for more details.

```
I1:_____ EQ1
FREQ:1000Hz
```

BW:

The EQ bandwidth ranges from 0.02 to 3.61 octaves in steps of 0.01 octave. The equivalent Q value is automatically shown besides the octave value. For 1st degree al -pass (AP-1) filter, the bandwidth will sets the phase shift at the centre frequency. This phase shift is gradually changed from 180 degrees above the centre frequency to the specified value.

```
I1:_____ EQ1
BW:0.33 Q=4.36
```

```
I1:_____ EQ1
DEG:15.5 deg
```

LEVEL:

The EQ level (or gain) ranges from -30.00dB to +15.00dB in 0.25dB steps.

```
I1:_____   EQ1
LEVEL:0.00dB
```

6.3   Input Graphic Equalizer

GEQ#:

The graphic equalizer has 31 bands of equalization from 20Hz to 20kHz. This control selects one of the 31 available bands.   The frequency corresponding to each band is also shown.

```
I1:_____      GEQ1
GEQ#:1    f=20
```

LEVEL:

The GEQ level (or gain) ranges from -30.00dB to +15.00dB in 0.25dB steps.

```
I1:_____      GEQ1
LEVEL:0.00dB
```

BYPASS:

This control will un-bypass (Off) or bypass (On) the entire GEQ for this channel.

```
I1:_____      GEQ1
BYPASS:Off
```

6.4   **Input/Output Crossover**

TYPL:
The 3 available filter types for the low frequency crossover point (high pass)
are: Butterworth, Linkwitz Riley or Bessel.

```
O1:_____ XOver
TYPL:Off
```

FRQL:
The filter cut-off frequency for the low frequency crossover point (high pass)
ranges from 20 to 30kHz in either 1Hz steps or 1/36 octave steps. The
frequency steps can be selected in the   **System Menu**. Please refer to
page 21 for more details.

```
O1:_____ XOver
FRQL:1000Hz
```

SLPL:
The filter slope for low frequency crossover point (high pass) ranges from 6
to 48dB/octave. If the selected filter type is Linkwitz Riley, the available
slopes are 12, 24, 36 or 48 dB/octave only.

```
O1:_____ XOver
SLPL:24dB
```

TYPH:
The 3 available filter types for the high frequency crossover point (low pass)
are: Butterworth, Linkwitz Riley or Bessel.

```
O1:_____ XOver
TYPH:Off
```

FRQH:

The filter cut-off frequency for the high frequency crossover point (low pass) ranges from 20 to 30kHz in either 1Hz steps or 1/36 octave steps. The frequency steps can be selected in the **System Menu**. Please refer to page 21 for more details.

```
O1:_____ XOver
FRQH:1000Hz
```

SLPH:

The filter slope for high frequency crossover point (low pass) ranges from 6 to 48dB/octave. If the selected filter type is Linkwitz Riley, the available slopes are 12, 24, 36 or 48 dB/octave only.

```
O1:_____ XOver
SLPH:24dB
```

Filter configuration	Low crossover point	High crossover point	
None	FTRL Off	FTRH Off	
Highpass	FTRL not Off	FTRH Off	
Lowpass	FTRL Off	FTRH not Off	
Bandpass	FTRL not Off	FTRH not Off	
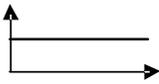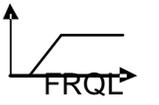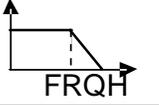
6.5   Input Compressor

THRESH:
The compressor threshold ranges from -20 to +20dBu in 0.5dB steps.

```
O1:_____ Comp
THRESH:+20.0dB
```

ATTACK:
The compressor attack time ranges from 0.3 to 1ms in 0.1ms steps, then ranges from 1 to 100ms in 1ms steps.

```
O1:_____ Comp
ATTACK:10ms
```

RELEASE:
The compressor release time can be set at 2X, 4X, 8X, 16X or 32X the attack time.

```
O1:_____ Comp
RELEASE:8XAtck
```

RATIO:
The compressor ratio is the slope in which the signal is compressed. It ranges from 1:1 to 1:40.

```
O1:_____ Comp
RATIO: 1:1
```

6.6   Input/Output Channel Name

NAME:
A 6 characters name can be assigned to each channel.

```
I1:_____ Name
NAME:_____
```

6.7   Output Limiter

THRESH:
The limiter threshold ranges from -20 to +20dBu in 0.5dB steps.

```
O1:_____ Limit
THRESH:+20.0dB
```

ATTACK:
The limiter attack time ranges from 0.3 to 1ms in 0.1ms steps, then ranges from 1 to 100ms in 1ms steps.

```
O1:_____ Limit
ATTACK:10ms
```

RELEASE:
The limiter release time can be set at 2X, 4X, 8X, 16X or 32X the attack time.

```
O1:_____ Limit
RELEASE:8XAtck
```

6.8   Output Source

IN1-8:
This sets the input channel source for the current output channel. It can be used to mix the input source (in dB) or disable it (Off). If more than one input sources are enabled, they will be added together as the source for the current output channel.[1]

```
O1:_____ Source
IN1:Off
```

```
O1:_____ Source
IN2:-14.00
```

---

[1] Number of Inputs is dependent on the model.

7.0 Operating the System Menus

The **System Menus** allow the user to control and change parameters that are related to the system behavior and general operation. It can be accessed by pressing the **Sys** key in the main menu (when no Input/Output or System Menu is activated). All System Menus require pressing the **Enter** key to confirm and save the settings.

7.1   Preset Recall

The LMS has a built in non-volatile memory that can store up to 30 different preset setups.

P:
This control selects which program to recal from the non-volatile memory. The program name is displayed to the right of the program no.

```
SYSTEM        Recall
P:1 _____
```

7.2   Preset Store

The LMS has a built in non-volatile memory that can store up to 30 different preset setups. A program can be stored using this menu. The old program with the same program number wil be replaced. Once the program is stored in the flash memory, it can be recal ed at a later time, even after power down.

P:
This control selects which preset location in the non-volatile memory to be saved.

```
SYSTEM        Store
P:1
```

NAM:

A descriptive name of up to 12 characters can be assigned to each program.

```
┌─────────────────────────────┐
│  SYSTEM          Store       │
│  NAM:_____             │
└─────────────────────────────┘
```

7.3   Device Configuration

MODE:

The unit assigns the Input source for the corresponding outputs when the Mode of Operation is changed. The crossover point parameters like the filter type, cut-off frequency and slope have to be configured manual y in the Crossover Menu for each Output Channel.

```
┌─────────────────────────────┐
│  SYSTEM          Config      │
│  MODE:None                   │
└─────────────────────────────┘
```

Mode:	Out 1	Out 2	Out 3	Out 4	Out 5	Out 6	Out 7	Out 8
None	Any	Any	Any	Any	Any	Any	Any	Any
Stereo 2-Way	In1	In1	In2	In2	Any	Any	Any	Any
Stereo 3-Way	In1	In1	In1	In2	In2	In2	Any	Any
Stereo 4-Way	In1	In1	In1	In1	In2	In2	In2	In2

*Note: The configuration mode configures the input sources when selected. The user can change the source afterwards if desired. It does not keep the configuration in memory.

7.4   Copy Channels

Copy Channels from the source to the target. When the Source and Targets are both Inputs and Outputs, al audio parameters will be copied. When one of the Source or the Target is an input while the other is an output, only the Level, Polarity, Delay, EQ, Crossover, and Channel Name are copied.

SOURCE:
This is the channel to be copied from.

```
SYSTEM          Copy
SOURCE:In1
```

TARGET:
This is the channel to be copied to.

```
SYSTEM          Copy
TARGET:In2
```

7.5   General Settings

FREQ MODE:
This changes the frequency control mode for EQ and crossover filters. It can be 36 steps/octave or All Frequencies (1 Hz resolution).

```
SYSTEM        Generl
FREQ MODE:All
```

DELAY UNIT:
This sets the time unit for input and output delay to ms, ft, or m.

```
SYSTEM        Generl
DELAY UNIT:ms
```

7.6   **Ethernet Settings**

The network settings are separated into 3 menus.

Eth-IP:
A unique IP address should be assigned to each unit in the network.

```
SYSTEM        Eth-IP
:255.255.255.255
```

Eth-GW:
The gateway address of the network. Usually, this should be the IP address of your router/switch/hub address.

```
SYSTEM        Eth-GW
:255.255.255.255
```

Eth-SM:
The sets the subnet mask used by your network.

```
SYSTEM        Eth-SM
:255.255.255.255
```

7.7   **Communication Settings**

NOTE: User must power cycle the unit for this settings to take effect.

BAUD RATE:
The sets the baud rate of the serial communication. LMS Software uses a baud rate of 115200, it should be left unchanged for most user.

```
SYSTEM        Comm
BAUD RATE:115200
```

DEVICE ID:

This control assigns a device ID from 1 to 16 to the unit. This ID is only useful when a network of more than 1 unit is used in conjunction with 1 or more XPanel.

```
SYSTEM        Comm
DEVICE ID:1
```

PORT:

This allows the user to select which serial communication device to use, RS232/USB or Ethernet.[2]

```
SYSTEM        Comm
PORT:RS232/USB
```

7.8   Security Password

The factory default password is blank ("____"), it can be changed to any combination of 4 characters in this menu.

OLD PW:

The user is required to enter the old password first to modify the password.

```
SYSTEM        Passwd
OLD PW:____
```

NEW PW:

The new password desired.

```
SYSTEM        Passwd
NEW PW:____
```

---

[2] This menu is only shown in older firmware versions.

7.9   Security Lock

The LMS enables the user to secure the unit and prevent undesired changes in the setup. In order to lock or unlock the unit the user must enter the correct password. The user can only lock or unlock al menus using the front panel, LMS Software is required to lock or unlock individual menu.

PASSWORD:
The password is 4 characters in length. The factory default of a new unit does not require a password. The user can change the password via LMS Software or the Set Password menu.

```
SYSTEM       Secure
PASSWORD:____
```
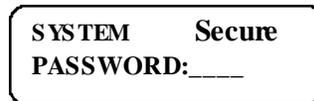
8.0 Quick Reference

Parameters	Menu <<Menu >>	Field <<Cursor> >	Min	Max	Steps	Units
Mic Level	Mic	LEVEL	0	+45	3	dB
Level	Signal	LEVEL	-40	+15	0.25	dB
Polarity	Signal	POL	+ / -			
Delay	Signal	DELAY	0	62400	1	10us steps
EQ Number	EQ	EQ#	1	8	1	
EQ Level	EQ	LEVEL	-30	+15	0.25	dB
EQ Frequency	EQ	FREQ	20	30,000	1	Hz
EQ Bandwidth	EQ	BW	0.02	3.61	0.01	Octave
GEQ Number	GEQ	GEQ#	1	31	1	
GEQ Level	GEQ	LEVEL	-30	+15	0.25	dB
GEQ Bypass	GEQ	BYPASS	Off / On			
XOver Low Type	XOver	FTRL	Off / Butterworth / Linkwitz-Riley / Bessel			
XOver Low Frequency	XOver	FRQL	20	30,000	1	Hz
XOver Low Slope	XOver	SLPL	6	48	6	dB/octave
XOver High Type	XOver	FTRH	Off / Butterworth / Linkwitz-Riley / Bessel			
XOver High Frequency	XOver	FRQH	20	30,000	1	Hz
XOver High Slope	XOver	SLPH	6	48	6	dB/octave
Compressor Threshold	Comp	THRESH	-20	+20	0.5	dBu
Compressor Attack Time	Comp	ATTACK	0.3	100	0.1 / 1	ms
Compressor Release Time	Comp	RELEASE	2 / 4 / 8 / 16 / 32X Attack time			
Compressor Ratio	Comp	RATIO	1:1 to 1:40			
Limiter Threshold	Limit	THRESH	-20	+20	0.5	dBu
Limiter Attack Time	Limit	ATTACK	0.3	100	0.1/1	ms
Limiter Release Time	Limit	RELEASE	2 / 4 / 8 / 16 / 32X Attack time			
Source	Source	1, 2, 3, 4, 5, 6, 7, 8	Off	+15	0.25	dB
Channel Name	Name	NAME	6 characters			

9.0 PC Control Software

The LMS 242 is shipped with a special PC Graphic User Interface (GUI) application - LMS Software. LMS Software gives the user an option to control the unit from a remote PC via the serial communication link. The GUI application makes it much easier to control and monitor the device, al owing the user to get the whole picture on one screen. Programs can be recal ed and stored from/to PC's hard drive, thus expanding the storage to become virtual y limitless.

LMS Software can be connected to the LMS 242 via RS232, USB or Ethernet. USB requires the installation of additional driver. The user is given an option to install it during the installation of LMS Software, and if the user did not install it at that time, they may choose to do so by running the USB driver installer from the provided software CD.[3]

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[3] The latest version of LMS Software and USB driver are available at LMS web site.

10.0 Specifications

Inputs and Outputs

Input Impedance:	>10k Ohms
Output Impedance:	50 Ohms
Maximum Level:	+20dBu
Type:	Electronical y balanced

Audio Performance

Frequency Response:	+/- 0.1dB (20 to 30kHz)
Dynamic Range:	115dB typ (unweighted)
CMMR:	> 60dB (50 to 10kHz)
Crosstalk:	< -100dB
Distortion:	0.002% (1kHz @+4dBu)

Digital Audio Performance

Processor:	40-bit
Sampling Rate:	96kHz
Analog Converters:	High Performance 24-bit
Propagation Delay:	1.5ms

Front Panel Controls

Display:	2 x 16 Character Backlit LCD
Level Meters:	5 segment LED
Buttons:	Mute/Edit Controls
	Menu Controls
Dial Encoder:	Embedded Thumb Wheel

Connectors

Analog Inputs:	3-pin Female XLR
Analog Outputs:	3-pin Male XLR
RS-232:	Female DB-9
USB:	Type B
Power:	Standard IEC Socket

General

Power:	90-240 VAC (50-60Hz)
Dimensions:	19"x1.75"x9" (483x44x229 mm)
Weight:	10 lbs / 4.5 kg

Audio Control Parameters

Gain:	-40 to +15dB in 0.25dB steps
Polarity:	+/-
Delay:	Up to 650ms per I/O

Parametric Equalizers (8 per I/O)

Type:	Parametric, Hi-shelf, Lo-shelf, Phase 1, Phase 2
Gain:	-30 to +15dB in 0.25dB steps
Bandwidth:	0.02 to 3.61 octaves (Q=0.5 to 72)

31-Band Graphic Equalizers (1 per Input)

Gain:	-30 to +15dB in 0.25dB steps

Crossover Filters (2 per I/O)

Filter Types:	Butterworth, Bessel, Linkwitz Riley
Slopes:	6 to 48dB/oct

Limiters (1 per Output)

Threshold:	-20 to +20dBu
Attack:	0.3 to 100ms
Release:	2 to 32X the attack time

System Parameters

No. of Presets:	30
Program Names:	12 character length
Delay Units:	ms, ft, m
Frequency Modes:	36 steps/oct, 1Hz resolution

Note: Specifications subject to change without notice

11.0 Warranty

The LMS 242 is warranted covering materials and workmanship for a period of five (1) years, as determined by the date of retail purchase (according to the sales receipt from an authorized dealer) or the date of manufacture if the sales receipt is not available (according to the serial number). This warranty applies to the product; therefore, the remainder of the warranty period wil be automatical y transferred to any subsequent owner. This warranty applies only to failure of a LMS product caused by defects in materials and workmanship during the stated warranty period. It does not apply to a unit that has been subjected to abuse, accident, modification, improper handling/instal ation, or repairs made without factory authorization or by anyone other than authorized LMS Field Service Stations. This warranty is void if the serial number has been defaced, altered or removed. Products covered by this warranty will be repaired or replaced at the option of LMS, without charge for materials or labor, provided al the terms of this warranty have been met.

For factory service, please cal or email for a Return Authorization (R/A) number before shipping. If the product is shipped, the fol owing information must be included in the package:

1. Owner's complete name, daytime phone number, return street address and return authorization number.
2. The serial number of the product being returned and a copy of the retail sales receipt, if possible.
3. A complete description of the problem(s) experienced, including a brief description of how the equipment is being used and other equipments involved.

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