



MT113-100

MT113-101

**Mult  
Tasker™**

MANUAL PART NUMBER: 400-0209-002

## MT113-100/101

# 3-IN MIXER 1-OUT, + 15W STEREO AUDIO POWER AMPLIFIER CARD FOR MULTITASKER USER'S GUIDE

**ALTINEX**

SIGNAL  
MANAGEMENT  
SOLUTIONS™

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## PRECAUTIONS / SAFETY WARNINGS 1

Please read this manual carefully before using your **MT113-100/101**. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **MT113-100/101** and to prevent fire and shock hazard. Please read them carefully and heed all warnings.

### 1.1 GENERAL

- Qualified ALTINEX service personnel, or their authorized representatives must perform all service.
- To prevent fire or shock, do not expose this unit to rain or moisture. Do not place the **MT113-100/101** in direct sunlight, near heaters or heat-radiating appliances, or near any liquid. Exposure to direct sunlight, smoke, or steam can harm internal components.
- Handle the **MT113-100/101** carefully. Dropping or jarring can damage the card.
- Do not pull the cables that are attached to the **MT113-100/101**.
- Insert the card carefully into the slots of the MultiTasker without bending any edges.
- When removing a card, pull it halfway through to avoid damage to internal cables. If an expansion card is being removed, please make sure that the Main card to which it is attached is also pulled out simultaneously.

### 1.3 CLEANING

- Clean only the connector area with a dry cloth. Never use strong detergents or solvents, such as alcohol or thinner. Do not use a wet cloth or water to clean the card. Do not clean or touch any component or PCB.

### 1.4 FCC / CE NOTICE

- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his expense.
- Any changes or modifications to the unit not expressly approved by ALTINEX, Inc. could void the user's authority to operate the equipment.

## ABOUT YOUR MT113-100/101 2

### MT113-100/101

3 in Mixer, 1 fixed line level output and 30W amplifier Card

The **MT113-100/101** is a Stereo Audio Power Amplifier Card designed for use with the MultiTasker. This card allows the connection of up to two line level balanced/unbalanced inputs and one microphone. The card has a built-in, dual 15W, power amplifier. The **MT113-100** has a 70 Volt output for sound reinforcement speakers and the **MT113-101** has stereo output to drive 8 Ohms speakers direct.

Mixing of inputs is selected via easy-to-use ASCII commands from a control system or computer connected to the RS-232 port of the MultiTasker enclosure. The **MT113-100/101** can accept balanced or unbalanced audio inputs and the output can be wired for either balanced or unbalanced audio output.

The **MT113-100** is primarily designed to drive a 70 Volt speaker system. It has an on-board transformer to convert a low impedance signal to a high voltage, high impedance output signal. This card can supply total of 30 Watts of power to the speakers.

The **MT113-101** is primarily designed to utilize standard 8 Ohms stereo speaker systems. This card can deliver a full 15 Watts of power to each speaker.

The **MT113-100/101** has a separate power supply that is used to the drive output of the power audio amplifier. This power supply has universal power input and can operate from 90 to 240 volts AC.

Through RS-232 control, the **MT113-100/101** can be controlled to adjust the signal level on each input in 16 steps. The output volume, treble and bass of the amplifier can be adjusted in 16 steps.

All three inputs to the amplifier are mixing inputs and can be adjusted from 0db to -60db.

## TECHNICAL SPECIFICATIONS 3

FEATURES/DESCRIPTION	MT113-100/101
<b>GENERAL</b>	
<b>Inputs</b>	
Input Connectors	(3) Terminal Blocks
Input 1	Balanced/Unbalanced Microphone Input
Input 2	Line level Balanced/Unbalanced
Input 3	Line Level Balanced/Unbalanced
<b>Outputs</b>	
Fixed Output	Line Level Balanced/Unbalanced
Speaker Output	MT113-100 70V 30 Watts
Speaker Output – stereo	MT113-101 8 ohms 15 Watts per speaker output
<b>Compatibility</b>	Stereo or Mono Audio

Table 1. **MT113-100/101** General

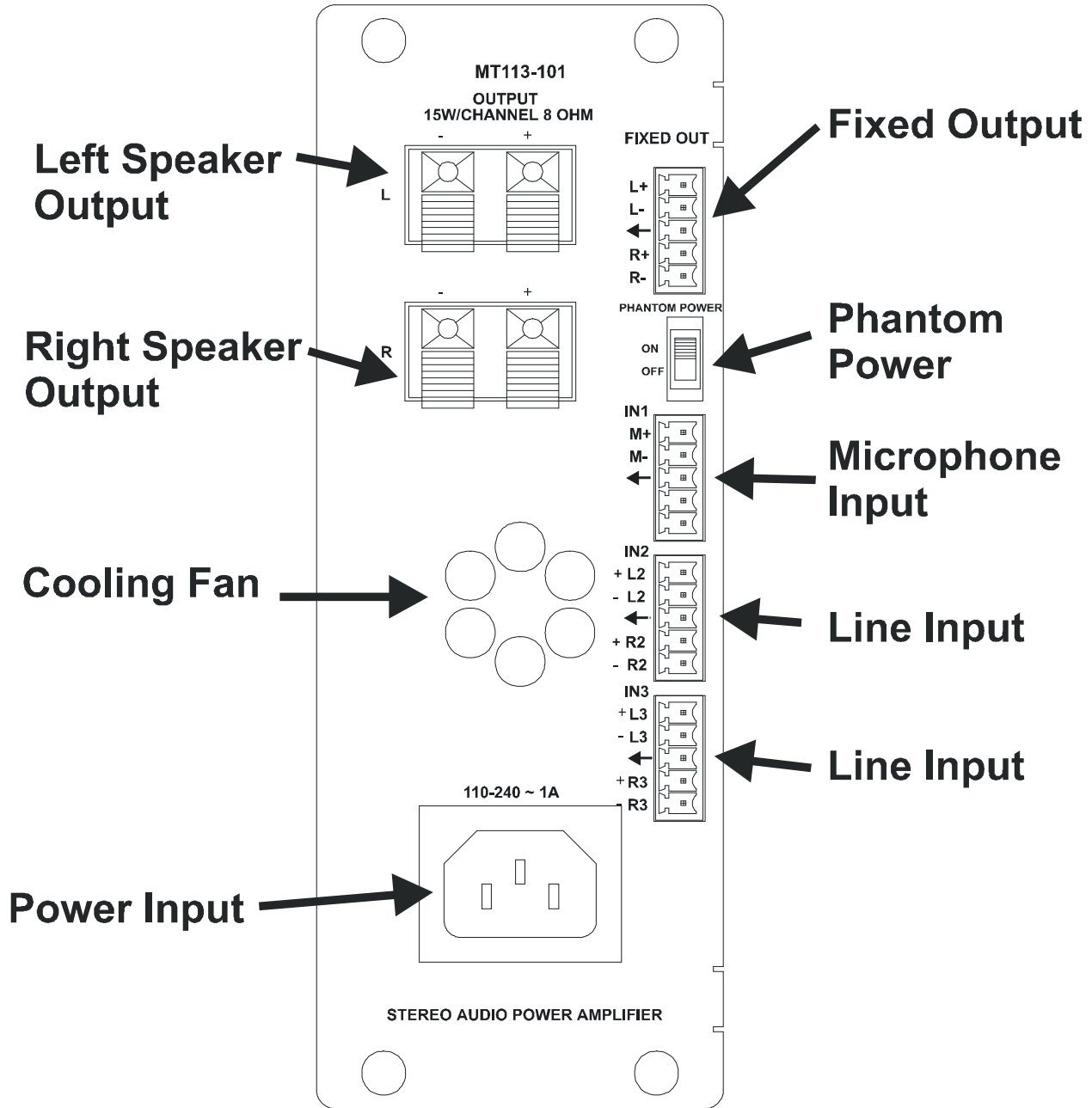
MECHANICAL	MT113-100/101
Enclosure Slots Required	Three
Weight	2.0 lb (0.45 kg)
Connector Panel	Black
T° Operating	10°C-50°C
T° Maximum	75°C
Humidity	90% non-condensing
MTBF (calc.)	55,000 hrs

Table 2. **MT113-100/101** Mechanical

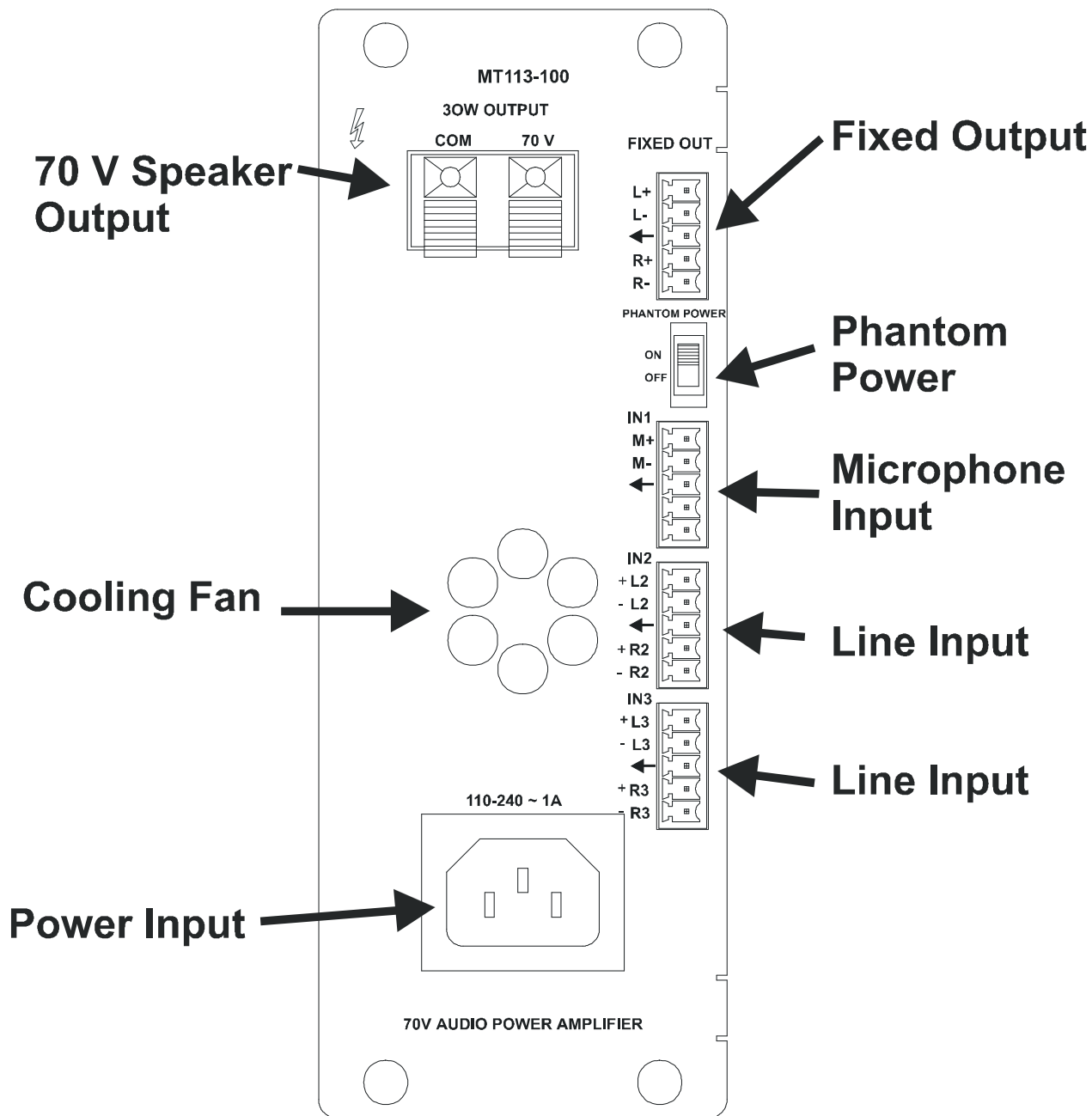
ELECTRICAL	MT113-100/101
<b>Input Signals</b>	
Max Line Level Input	1Vp-p 10 kOhms
Max Microphone Input - balanced	5mV 47 kOhms At maximum gain.
<b>Power Amplifier</b>	
Output Power – stereo	15 W per channel
	Mono 30 W, 70V output
Frequency Response	10 Hz to 20 kHz (+/- 0.5 dB)
Noise Floor	-97 dB @ 20 kHz

Table 3. **MT113-100/101** Electrical

## MT113-100 DESCRIPTION



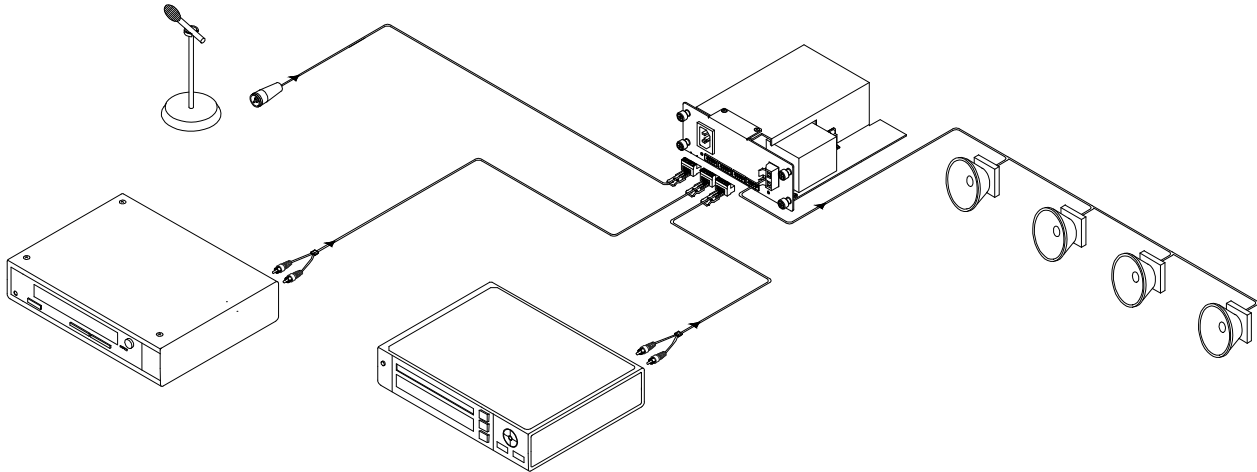
## MT113-101 DESCRIPTION



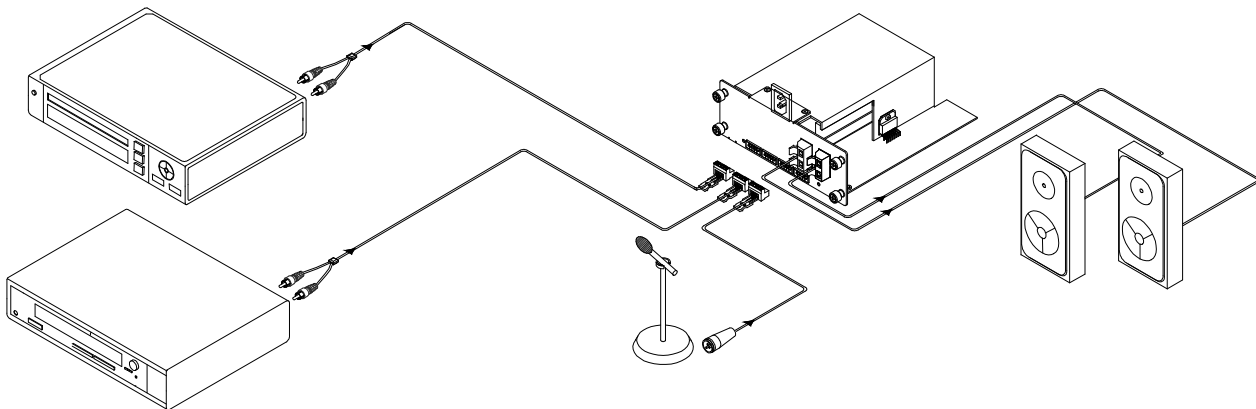
## APPLICATION DIAGRAMS

5

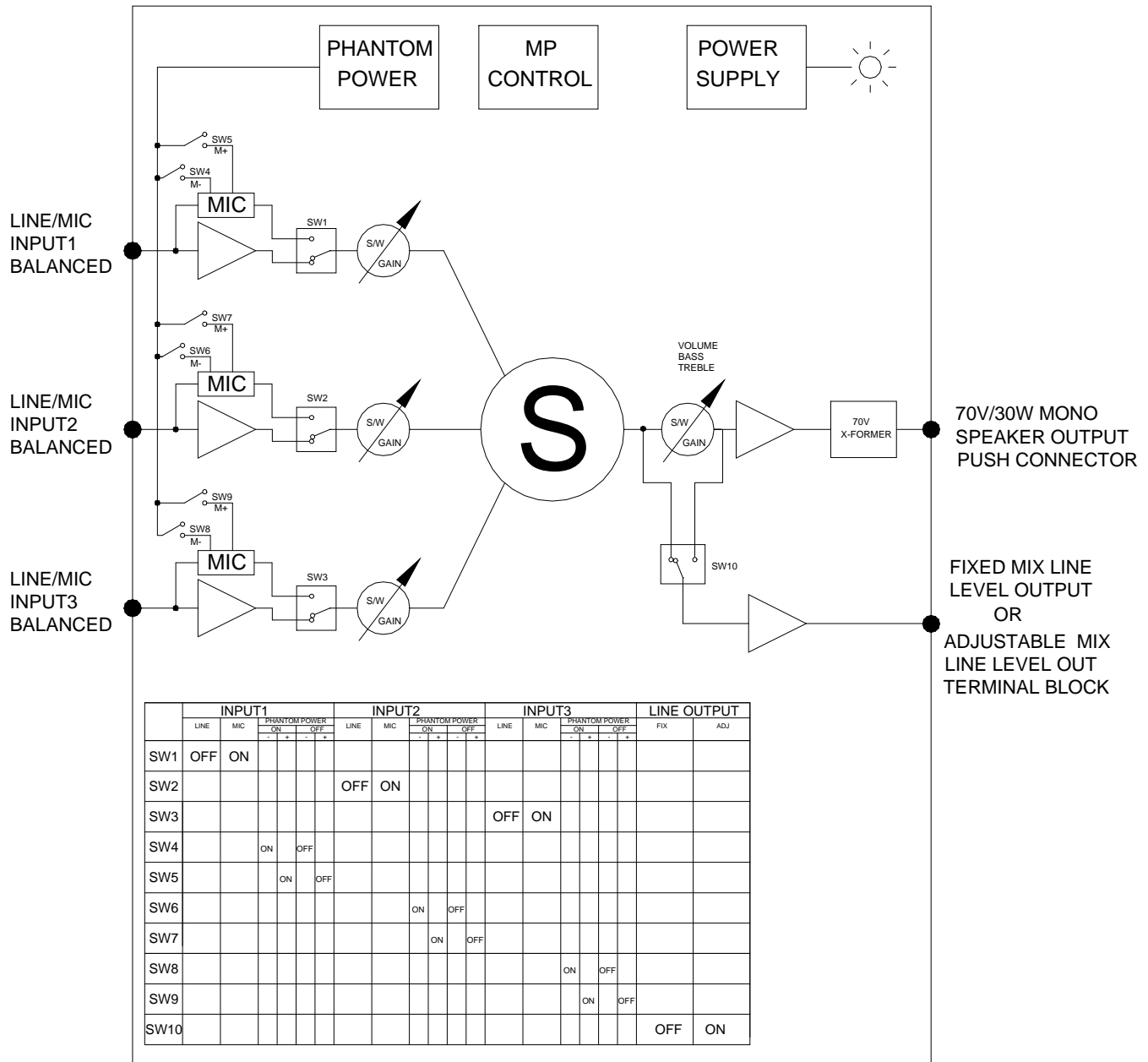
### DIAGRAM 1: MT113-100 TYPICAL SETUP



### DIAGRAM 2: MT113-101 TYPICAL SETUP



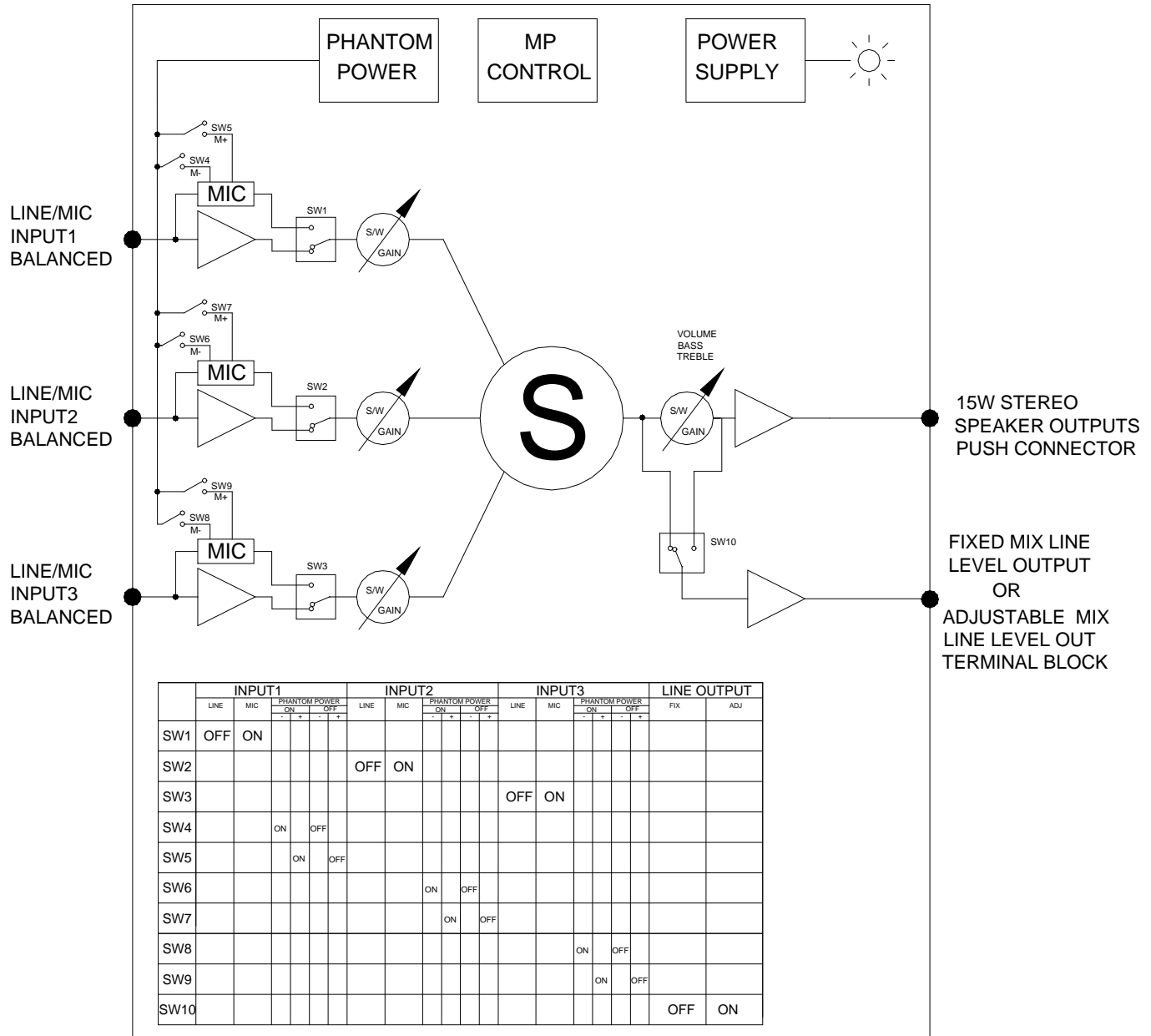
**DIAGRAM 3: MT113-100 INTERNAL VIEW**





**DIAGRAM 4: MT113-101 INTERNAL VIEW**

X



## INSTALLING YOUR MT113-100/101 6

- Step 1.** Turn off power to the MultiTasker enclosure.
- Step 2.** Slide the **MT113-100/101** into an available slot in the MultiTasker Enclosure in order to connect to the bus. Make sure that the **MT113-100/101** card fits into place.
- Step 3.** Secure the card to the MultiTasker by tightening the retainer screws located on the top and bottom of the **MT113-100/101** card.
- Step 4.** Turn on power to the MultiTasker.
- Step 5.** The fan on the card will turn on.
- Step 6.** Connect audio cables from the audio source to the input connector of the **MT113-100/101**. Connect the output connectors of the **MT113-100/101** to the audio equipment through an audio cable.
- Step 7.** Starting from the left, identify the slot number where the **MT113-100/101** card is plugged into the enclosure and note that it is for RS-232 control.

## OPERATION 7

### 7.1 RS-232 CONTROL

The **MT113-100/101** has many advanced remote control capabilities, which are accessible through standard RS-232 communication. The actual controlling can be accomplished through a computer control system or any other device capable of sending RS-232 commands.

#### 7.1.1 RS-232 INTERFACE

The RS-232 commands, for the **MT113-100/101** are in a simple ASCII character format.

1. Square brackets “[ ]” are part of the command.
2. Use uppercase letters for all commands.

After processing a command, an OK or ER will be returned as feedback if "F" is included at the end of a command string.

Commands ending in "S" will be saved into memory. Commands not ending in "S" will still be executed but will not be restored when the system is reset or powered OFF then ON.

### 7.2 DESCRIPTION OF COMMANDS

Each command consists of three parts: Function, Card ID, and Unit ID.

[ Function , Card ID , Unit ID ]

Example: [VERC3U2]

VER = Function  
C3 = Card ID or Group ID  
U2 = Unit ID

For Function, see a detailed explanation under each command description.

The Card ID is an assigned value. It is equal to the enclosure slot number in which the card is installed. The value can range from 1 to 4 up to 1 to 20 depending on the enclosure.

Card ID 0 (C0) is used for the controller. See the MT100-100 User's Guide for details.

The Group ID is a number representing a group of cards defined with the [WR] command. When using the Group ID, all cards in the group will perform the given instruction.

Changing the position of a card will significantly affect the commands recorded on software definitions or third party control systems.

The Unit ID has a value from 0 to 9. Unit ID 0 should be used for single unit operation. If the Unit ID is set to zero, each command may be used without Ui. Use the command [SETU0], as explained in the MT100-100 User's Guide.

Example:

[VERC3]: For Unit ID Zero  
[VERC3Ui]: For Unit ID other than Zero  
[VERC3]: Equivalent to [VERC3U0]

#### 1. [VER]

This command displays the software version and card type for the **MT113-100/101** card.

Command Format: [VERCnUi]

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

An **MT113-100/101** card is in slot #4. Send the command [VERC4], and the MultiTasker Enclosure will return the following feedback:

```
[MT113-100 690-0133-009 C04]
```

MT113-100 = the card model

690-0133-009 = the software version

C04 = card ID number

## 2. [C]

This command receives the status of the card.

Command Format: [CnUi]

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

There is one **MT113-100/101** card in slot #4. Sending the command [C4] to the MultiTasker will display feedback similar to the following:

```
In1Vol=16/16
```

```
In2Vol=16/16
```

```
In3Vol=16/16
```

```
OutVol=16/16
```

```
Bass =08/16
```

```
Treble=08/16
```

```
Loudness:OFF
```

The status shows the input volume settings, in this case 16 out of 16, the output volume, the bass and treble levels and that the loudness feature is turned off.

If there is no card in slot #4, sending the [C4] command will not return any feedback.

## 3. [CnS]

This command saves the card volume settings. This configuration will be restored after the system is reset or powered off then on.

Command Format: [CnSUi]

Cn = Card ID (n = # from 1 to max slots)

S = save configuration

Ui = Unit ID (i = # from 0 to 9)

Example:

There is an **MT113-100/101** in slot #4. All volume levels are set to the maximum of 16. The bass and treble levels are set to 08. Save the settings of the card by sending the command [C4S]. The feedback will be as follows:

```
In1Vol=16/16
```

```
In2Vol=16/16
```

```
In3Vol=16/16
```

```
OutVol=16/16
```

```
Bass =08/16
```

```
Treble=08/16
```

```
Loudness:OFF
```

```
[SAVED]
```

## 4. [?]

This command will return general information about the MultiTasker and cards installed in the unit.

Command Format: [?Ui]

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = from 0 to 9)

Example:

A MultiTasker with ID #0 has a front panel with part number MT101-102 and contains an **MT113-100/101**. Send the command [?] and receive the following feedback:

```
[(MT101-102U0)(MT113-100C04)]
```

MT101-102U1 = Panel Number and Unit ID

MT113-100C04 = An MT113-100 is in slot 4.

## 5. [?C]

This command will return general information about the card and its status. It is a function of both the card and the front panel and is only available with MultiTasker Front Panel systems that have the following firmware:

690-0122-015 = Version 015 or later.  
 690-0123-004 = Version 004 or later.  
 690-0124-018 = Version 018 or later.

NOTE: In MTSetup™, send the command [VER] from the Terminal Window. The system will respond with feedback similar to the following:

[690-0122-015 690-0123-004 690-0124-018]

Check the last three digits against the numbers above to determine if the option is available.

Command Format: [?CnUi]

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = from 0 to 9)

The **MT113-100/101** is in slot #4. Send the command [?C4] to receive the feedback status.

All status feedback is enclosed in brackets, “[ ]”. Each data field within the status is enclosed in parentheses. The first two characters identify the status type. The last three characters are the card’s ID.

[(MT113-100C04)(VR690-0133-009C04)  
 (VO16C04)(VI161616C04)(VB08C04)  
 (VT08C04)(VL01C04)(VM0C04)]

MT113-100 = Card Type  
 VR690-0133-009 = Firmware version  
 VO16 = Output Volume Level=16  
 VI161616 = Input volume levels  
 VB08 = Bass level = 08 out of 16  
 VT08 = Treble level = 08 out of 16  
 VL01 = Loudness (00=ON, 01=OFF)  
 VM0 = Mute (0=OFF, 1=ON)

The Input Volume status line is read from left to right as outputs one through three. Each volume level is 2 digits, in this case, each is set to 16.

## 6. [STA]

This command enables/disables automatic feedback from the front panel. The command affects any card with auto-feedback capability, not just the **MT113-100/101**. The default at power on or reset is STA0, OFF.

Command Format [STA1] = ON

Command Format [STA0] = OFF

Feedback Prefix Definitions:

VR = Firmware Version

VO = Output Volume

VI = Input Volume

VB = Bass Volume

VT = Treble Control

VL = Loudness Control

VM = Mute Control

Example:

Command = [VLOA12C04]

Feedback = (VO12C04)

VO = Output Volume

12 = Output volume level12

C04 = Card slot number

## 7. [...S] – SAVE

This command will save the configuration command being sent in memory. When sending the command [VLBA12C4S], after reset or power up, the bass level on C4 will be 12 out of 16.

## 8. [...F] – FEEDBACK

After processing a command, an OK or ER will be returned as feedback if "F" is included at the end of some command strings.

## 9. [+ ] and [- ]

These commands allow a selected property to be adjusted from keyboard commands or programmed front panel buttons.

Command Format: [+ ], [- ]

[+] = Increment level by one step

[-] = Decrement level by one step

Example:

Select the Output Volume command for the card in slot #4. The current Output Volume level is 10, but it is not the optimal value. After sending the following commands, an optimum volume level of 15 is obtained:

1. [SELOC4]  
The current volume level is 10.
2. [-][-][-]  
The level is now 7 and is too low.
3. [+++++]  
The level is now 15 and no further adjustments are required.

## 10. [SELI]

This command sets the path to adjust the INPUT volume level. The input volume range is 00 to 16 and is adjustable using the [+] and [-] commands.

Command Format: [SELI $m$ C $n$ U $i$ ]

$m$  = Input ( $m$  = # from 1 to 3)

$C_n$  = Card ID ( $n$  = slot # from 1 to max slots)

$U_i$  = Unit ID ( $i$  = # from 0 to 9)

Example:

An **MT113-100/101** is in slot #4. Adjust the volume on Input 2 by sending the command [SELI2C4] and then using the [+] and [-] commands.

## 11. [SELO]

This command sets the path to adjust the OUTPUT volume level. The output volume range is 00 to 16 and is adjustable using the [+] and [-] commands or the Volume Ramping commands.

Command Format: [SELOC $n$ U $i$ ]

$C_n$  = Card ID ( $n$  = slot # from 1 to max slots)

$U_i$  = Unit ID ( $i$  = # from 0 to 9)

Example 1:

An **MT113-100/101** is in slot #4. Adjust the output volume by sending the command [SELOC4] and then using the [+] and [-] commands.

Example 2:

The output volume may also be adjusted using key ramping commands. See the VOLUME RAMPING FEATURE section of this manual for details on using this feature.

## 12. [SELB]

This command sets the path to adjust the bass level. The BASS level range is 00 to 16 and is adjustable using the [+] and [-] commands.

Command Format: [SELBC $n$ U $i$ ]

$C_n$  = Card ID ( $n$  = slot # from 1 to max slots)

$U_i$  = Unit ID ( $i$  = # from 0 to 9)

Example:

An **MT113-100/101** is in slot #4. Adjust the BASS on the output by sending the command [SELBC4] and then using the [+] and [-] commands.

## 13. [SELT]

This command sets the path to adjust the treble level. The TREBLE level range is 00 to 16 and is adjustable using the [+] and [-] commands.

Command Format: [SELTC $n$ U $i$ ]

$C_n$  = Card ID ( $n$  = slot # from 1 to max slots)

$U_i$  = Unit ID ( $i$  = # from 0 to 9)

Example:

An **MT113-100/101** is in slot #4. Adjust the TREBLE on the output by sending the command [SELTC4] and then using the [+] and [-] commands.

## 14. [VLOA]

This command sets the OUTPUT volume to an absolute value.

Command Format: [VLOAmCnUi]

m = Volume Level (m = # from 0 to 16)

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Set the output volume to 16 for the **MT113-100/101** in slot #4. Send the command [VLOA16C4].

## 15. [VLI]

This command sets an INPUT volume to an absolute level.

Command Format: [VLlxA mCnUi]

x = Input Number (x = # from 1 to 3)

m = Volume Level (m = # from 0 to 16)

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Set Input 2 volume level to a value of 8 for the card in slot #4. Send the command [VLI2A8C4].

## 16. [VLBA]

This command sets the output BASS level to an absolute level.

Command Format: [VLBA mCnUi]

m = BASS Level (m = # from 0 to 16)

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Set the output BASS level of the **MT113-100/101** in slot #4 to the maximum of 16 by sending the command [VLBA16C4].

## 17. [VLTA]

This command sets the output TREBLE level to an absolute value.

Command Format: [VLTA mCnUi]

m = TREBLE (m = # from 0 to 16)

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Set the output TREBLE of the **MT113-100/101** in slot #4 to a mid-range value of 8 by sending the command [VLTA8C4].

## 18. [LOD0]

This command disables the loudness feature.

Command Format: [LOD0CnUi]

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Turn OFF the Loudness feature of the **MT113-100/101** in slot #4 by sending the command [LOD0C4].

## 19. [LOD1]

This command enables the loudness feature.

Command Format: [LOD1CnUi]

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Turn ON the Loudness feature of the **MT113-100/101** in slot #4 by sending the command [LOD1C4].

## 20. [MUT0]

This command enables the speaker output. It does not affect the fixed output.

Command Format: [MUT0CnUi]

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Turn on the speaker ports of the **MT113-100/101** in slot #4 by sending the command [MUT0C4].

## 21. [MUT1]

This command disables the speaker output. It does not affect the fixed output.

Command Format: [MUT1CnUi]

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Turn off the speaker ports of the **MT113-100/101** in slot #4 by sending the command [MUT1C4].

## 22. [CLR]

This command clears the card and resets it to its factory defaults. All volume levels are set to maximum, bass and treble are set to midrange, loudness is turned off and mute is turned off.

Command Format: [CLRCnUi]

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Clear the **MT113-100/101** in slot #4 by sending the command [CLRC4]. Send the status command after the clear command and receive the following feedback:

```
In1Vol=16/16
In2Vol=16/16
In3Vol=16/16
OutVol=16/16
Bass =08/16
Treble=08/16
Loudness:OFF
```

## VOLUME RAMPING FEATURE

The following 7 commands are used to control the output volume of the **MT113-100/101**. They may be used with computer control, but also are designed to be used with the {SETVK} command using keys on the Front Panel. The following code sample sets front panel keys 8 and 10 to Ramp Up and Ramp Down respectively. See your Front Panel User's Guide for more details.

When defined as a volume control key, the key will respond to two conditions: press and release. Below, subroutine 8 starts ramping up when key 8 is pressed and subroutine 10 starts ramping down when key 10 is pressed. Subroutine 108 stops ramping when either key is released.

```
{WRS8=RUPC4} //Ramp Up
{WRK8=8,108,0,0,0} //Press= start, release= stop
{WRS10=RDNC4} //Ramp Down
{WRK10=10,108,0,0,0} //Press= start, release= stop
{WRS108=RSTC4} //STOP RAMPING
{SETVK8} //Set key 8 as volume key
{WRLK8=VOL_UP} //Define Key 8 Label
{SETVK10} //Set key 8 as volume key
{WRLK10=VOL_DN} //Define Key 8 Label
[RAMP=10C4] //Set the ramp rate.
```

## 23. [RUP]

This command ramps the OUTPUT volume to its maximum level at the rate defined using the [RAMP] command.

Command Format: [RUPCnUi]

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Ramp the output volume from a starting level of 10 to the maximum level of 16 for the card in slot #8. Send the command [RUPC8] and the system will respond with the following feedback:

```
[11][12][13]...[16]
```

## 24. [RUP=]

This command ramps the OUTPUT volume to a user defined level at a rate defined using the [RAMP] command.

Command Format: [RUP=xxCnUi]

xx = Stop Level (xx = # from 01-16)

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Ramp the output volume from a starting level of 1 up to 10. Send the command [RUP=10C8] and receive the following feedback:

[02][03][04]...[10]

## 25. [RDN]

This command ramps the OUTPUT volume down to a level of 1 at a rate defined using the [RAMP] command.

Command Format: [RDNCnUi]

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Ramp the output volume from a starting level of 16 down to 1 for the card in slot #8. Send the command [RDNC8] and the system will respond with the following feedback:

[16][15][14]...[01]

## 26. [RDN=]

This command ramps the OUTPUT volume down to a user defined level at a rate defined using the [RAMP] command.

Command Format: [RDN=xxCnUi]

xx = Stop Level (xx = # from 01-16)

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Ramp the output volume from a starting level of 16 down to 8 for the card in slot #8. Send the command [RDN=8C8] and the system will respond with the following feedback:

[16][15][14]...[8]

## 27. [RST]

This command stops ramping and maintains the last volume setting.

Command Format: [RSTCnUi]

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

The card in slot #8 is ramping from 1 to 16. Send the command [RSTC8] and the card will stop ramping the volume. The last displayed volume setting is the new volume level.

## 28. [RAMP]

This command displays the ramping time for 16 steps. The time between each step is equal to the time in seconds divided by 16.

Command Format: [RAMPCnUi]

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Display the ramp rate setting for the card in slot #8 by sending [RAMPC8]. The system will respond with feedback similar to the following:

RAMPTIME = 6 SECONDS

## 29. [RAMP=]

This command sets the ramp rate for 16 steps. The settings range from 4 to 18 seconds, in two-second intervals.

Command Format: [RAMP=xCnUi]

x = Rate in Seconds

4 = 0.25 seconds/step

6 = 0.38 seconds /step

8 = 0.50 seconds /step

10 = 0.63 seconds /step

12 = 0.75 seconds /step

14 = 0.88 seconds /step

16 = 1.00 seconds /step

18 = 1.13 seconds /step

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)



Example:

There is an **MT113-100/101** in slot #5. Send the command [RAMP=16C5] to set the ramp rate to 16 seconds. After this is set, any ramping will occur at a rate of 16 steps in 16 seconds, or 1 second per step. Confirm the setting by sending the command [RAMPC5] and receiving the feedback:

RAMPTIME = 16 SECONDS

## 30. [TEST]

This command performs a test on the internal memory. Upon completion, the system will display the results. If there are no problems, the system will display the following:

MEMORY IS GOOD

Otherwise, failures will be indicated.

Command Format: [TESTCnUi]

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

There is an **MT113-100/101** in slot #10. In order to test the internal memory, send the command [TESTC10].

## 31. [FBD]

This command turns feedback delay on or off. It is necessary when installing some newer cards in older systems. If the system does not receive all of the feedback from the card, the card may be communicating too fast. This command will slow down the card's communication rate.

Command Format: [FBDmCnUi]

m = Delay (0= no delay, 1= delay 100mS)

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = from 0 to 9)

Example:

The command [HELPC4] is sent to the card in slot #4. Some of the HELP file is displayed on the screen, but most is missing. Send the command [FBD1C4] to slow down the rate at which the card sends feedback to the system.

## CARD ID COMMANDS

The default Card ID is the same as the card slot number. The next several commands allow the user to change the Card ID to a value other than the slot number.

The ID commands work with all MultiTasker Front Panel systems. However, front panels that have firmware releases prior to the following will not be able to address Card ID's greater than the number of slots in the system:

690-0122-019 = Version 019 or later.

690-0123-005 = Version 005 or later.

690-0124-019 = Version 019 or later.

NOTE: In MTSetup, send the command [VER] from the Terminal Window. The system will respond with feedback similar to the following:

[690-0122-015 690-0123-005 690-0124-019]

Check the last three digits against the numbers above to determine if the Card ID commands can address all 99 Card ID's.

Some cards require more than one slot in the MultiTasker system. As an example, some matrix switcher cards require 4 slots. If there are 5 of these cards installed, they would be numbered C4, C8, C12, C16 and C20. Changing the Card ID allows the user to define the cards as C1, C2, C3, C4 and C5.

Another use for changing the Card ID is to be able to use multiple systems without having to set each unit to a different Unit ID. All systems may be left as Unit ID 0 for ease of programming. The cards in the first unit may be numbered 1-10 and in the second unit 11-20.

## 32. [RSI]

This command resets the card ID's in the system. After sending this command, each card ID in the system will match the slot number of the card. Use this command along with the SID commands that follow. The [RSI] command MUST be used prior to changing Card ID's once they have already been set.

Command Format: [RSI]

Example:

Send the command [RSI] to the system with Unit ID 0. The card in slot 1 will have ID 1, the card in slot 2 will have ID 2 and so on.

## 33. [SIDn]

This command sets all the cards installed in the MultiTasker system to the same Card ID. After sending this command, all cards will be addressed with the same ID. Use caution when sending this command to a system with multiple board types.

Command Format: [SIDn]

n = Card ID (n = # from 1 to 99)

Example:

Send the command [SID1] to the system. All the cards in the system now have ID 1. Any commands that are sent to Card ID 1 will be received and executed by each card.

## 34. [SIDnCi]

This command sets the Card ID of a single card to a number from 1 to 99.

Command Format: [SIDnCi]

n = Card ID (n = # from 1 to 99)

Ci = Slot Number (i = # from 1 to max slots)

Example:

Send the command [SID50C10] to set the ID of the card in slot #10 to an ID of 50.

## 35. [SID+]

This command sets the ID of all the cards in a system to their slot number plus an offset value.

Command Format: [SID+n]

n = Offset amount (n = # from 0 to 99)

The maximum Card ID is 99, so subtract the highest slot number from 99 to find the maximum offset. For example, in an 8 slot enclosure, the maximum offset would be 91. The slot number, 8, plus the offset, 91, equals 99.

Example:

There are two, 20 slot enclosures to be connected together during normal operation. The first unit will use the Card ID defaults which are equal to their slot numbers. The second unit will have the same Unit ID, but will have the card ID's offset by 20.

Connect the computer to the second unit only. Send the command [SID+20] to set the ID of all cards in the enclosure to their slot number plus 20. Reconnect both units to the computer.

The cards in the first unit will be referenced as Card ID's 1-20 and the cards in the second unit will be referenced by Card ID's 21-40.

## 36. [RSN]

This command reads the slot number of the card with a specified ID number, and returns the value to the system to be displayed in the terminal window. If more than one card has the same ID, each slot number will be displayed.

Command Format: [RSNCi]

Ci = Card ID (i = # from 1 to 99)

Example:

The card in slot #4 takes up four slots in the enclosure. Its ID was set to 1 since it is the first card installed in the system, reading from left to right. Send the command [RSNC1] to find the slot number of this card. The system responds with the following feedback:

4

## 37. [HELP]

This command displays information available for the MultiTasker interface commands.

Command Format: [HELPCnUi]

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

In order to display the RS-232 commands available for the **MT113-100/101** card in slot #2, send the command [HELPC2]. The commands along with a brief description will be displayed in the Terminal Window.

## 38. [WR]

This command groups multiple cards in the enclosure allowing all the group members to be controlled simultaneously with the same command. Each unit may define a maximum of eight groups.

In MultiTasker systems with audio and video cards, boards are typically grouped as follows:

Group 1 = Video Cards

Group 2 = Audio Cards

Group 3 = Video and Audio Cards

If assigning group commands to button functions, it is best to use the "Press and Hold on Power Up" to make group settings.

Command Format: [WRCn<sub>1</sub>Cn<sub>2</sub>...GkUi]

Cn = Card ID (n = slot # from 1 to max slots)

Gk = Group number (k = # from 1-8)

Ui = Unit ID (i = # from 0-9)

Example:

To group cards 1, 2, and 3 as group 5 of Unit ID 1, send the command [WRC1C2C3G5U1]. After executing this command, cards 1, 2 and 3 will be grouped together as group 5 of Unit ID 1. The system will return the following feedback:

G1=C1C2C3

Now, when a command is sent to G1, each board in G1 will execute the same command.

## 39. [RMC]

This command may be used to remove one or more group members from a group. Reset the system after using this command for all changes to take effect.

Command Format: [RMCn<sub>1</sub>Cn<sub>2</sub>...GkUi]

Cn = Card ID (n = # from 1 to max slots)

Gk = Group number (k = # from 1-8)

Ui = Unit ID (i = # from 0-9)

Example:

Group 1 consists of the cards located in slots numbered 1, 2, 3, 4 and 5. Remove just cards #4 and #5 from the group by sending the command [RMC4C5G1]. The system will return the following feedback:

G1=C1C2C3

## 40. [RMG]

This command may be used to delete an entire group, or all groups.

### REMOVE ONE GROUP MEMBERS

Remove all the members from the group, effectively deleting the group.

Command Format: [RMGkUi]

Gk = Group number (k = # from 1-8)

Ui = Unit ID (i = # from 0-9)

Example:

Group 1 consists of the cards located in slots number 1, 2 and 3. Remove all cards from the group by sending the command [RMG1]. The system will return the following feedback:

G1=EMPTY

## REMOVE ALL GROUPS

Remove all the members from every group, effectively deleting all groups.

Command Format: [RMG\*Ui]

Ui = Unit ID (i = # from 0-9)

Example:

Group 1 consists of cards 1 and 2. Group 2 consists of cards 1, 2, 3, 4 and 5. Delete all the groups by sending the command [RMG\*]. The system will return the following feedback:

G1-G8:EMPTY

### 41. [RD]

This command reads and then displays the members in each group.

Command Format: [RDGkUi]

Gk = Group number (k = # from 1-8)

Ui = Unit ID (i = # from 0-9)

Example:

The cards in slots 1, 2 and 19 are part of group 5. Read the member data for group 5, by sending the command [RDG5]. The system will return feedback as follows:

G1=C1C2C19

The feedback shows G1 (Group 1) and then the cards that make up Group 1. In this case, Group 1 includes C1, C2 and C19.

### 42. [CLM]

This command removes the members in a group and leaves the group empty. It is equivalent to sending the [RMGkUi] command without card references.

Command Format: [CLMGkUi]

Gk = Group number (k = # from 1-8)

Ui = Unit ID (i = # from 0-9)

Example:

Group 5 of Unit ID 1 contains the cards in slots 1, 2 and 19. Read the member data for group 5 of Unit ID 1. Send the command [RDG5U1] and receive the following feedback:

G1=C1C2C19

Now, clear group 5 by sending the command [CLMG5U1]. Reread the member data as above and note the following feedback:

G1=EMPTY

## 7.3 SUMMARY OF COMMANDS

### Card Commands

- 1) [VER]      **Receives software version**
- 2) [C]        **Receives status of the card**
- 3) [CnS]     **Save card settings**
- 4) [?]        **Show system cards**
- 5) [?C]      **Show card information**
- 6) [STA]     **Enable/disable auto feedback**
- 7) [...S]    **Save the command being sent**
- 8) [...F]    **Show command feedback**
- 9) [ + ] [ - ] **Increments and Decrements**
- 10) [SELI]   **Select input volume to adjust**
- 11) [SELO]   **Select output volume to adjust**
- 12) [SELB]   **Select to adjust bass level**
- 13) [SELT]   **Select to adjust treble level**
- 14) [VLOA]   **Set absolute output volume**
- 15) [VLI]     **Set absolute input volume**
- 16) [VLBA]   **Set absolute bass level**
- 17) [VLTA]   **Set absolute treble level**
- 18) [LOD0]   **Turn ON loudness feature**
- 19) [LOD1]   **Turn OFF loudness feature**
- 20) [MUT0]   **Turn ON speaker output**
- 21) [MUT1]   **Turn OFF speaker output**

- 22) [CLR]      Reset card to default values
- 23) [RUP]      Ramp volume UP to max (16)
- 24) [RUP=]    Ramp volume UP to a value
- 25) [RDN]      Ramp volume DOWN to min (1)
- 26) [RDN=]    Ramp volume DOWN to a value
- 27) [RST]      Stop ramping
- 28) [RAMP]     Display ramp rate
- 29) [RAMP=]   Set ramp rate
- 30) [TEST]     Test internal memory IC's
- 31) [FBD]      Feedback delay on/off
- 32) [RSI]      Reset Card ID's
- 33) [SIDn]     Set all Card ID's
- 34) [SIDnCi]   Set one Card ID
- 35) [SID+]     Set Card ID offset
- 36) [RSN]      Read Card slot number
- 37) [HELP]     Display available commands

### Group Commands

- 38) [WR]      Groups multiple cards
- 39) [RMC]     Remove members from group
- 40) [RMG]     Delete group
- 41) [RD]      Displays group members
- 42) [CLM]     Delete group

## 7.4 MENU MODE

MENU MODE commands are RS-232 commands that allow virtually the same functionality as programming commands. Unlike the programming commands in the previous sections, 7.2 and 7.3, MENU commands prompt the user to select from a list of available options. The system then responds based upon selections made by the user.

MENU commands may be issued in response to prompts from within MTSetup™ or other RS-232 communication software.

The MENU driven commands are only available with MultiTasker Front Panel systems that have the following firmware:

690-0122-015 = Version 015 or later.

690-0123-004 = Version 004 or later.

690-0124-018 = Version 018 or later.

NOTE: In MTSetup™, send the command [VER] from the Terminal Window. The system will respond with feedback that is similar to the following:

[690-0122-015 690-0123-004 690-0124-018]

Check the last three digits against the numbers above to determine if the MENU MODE option is available.

### 7.4.1 MENU COMMAND DEFINITIONS

Refer to section 7.2 for details on card functions and examples. Following is a table cross-reference of menu mode sections versus programming commands.

MENU	COMMAND
<b>Control</b>	
Select	n/a
Save	[CnS], [..S]
Clear	[CLR]
Volume	[VLOA], [VLBA], [VLTA], [+/-]
Loudness	[LOD0], [LOD1]
Mute	[MUT0], [MUT1]
<b>Setup</b>	
Group	[WR], [CLM]
Input Volume	[VLImAn]
Ramp Time	[RAMP], [RAMP=]
<b>Status</b>	
n/a	[VER], [C]
<b>Help</b>	
n/a	[HELP]

## 7.4.2 USING MENU MODE

**SUGGESTION:** Before using the menu mode, it is best to disable the automatic feedback feature. The values and current settings will be displayed in the menu mode, but the automatic feature will display after each setting change making the menus difficult to read.

1. In order to enter menu mode, the system needs to be connected to a computer running RS-232 control software.
2. Insert the card into an empty slot and push in all the way for a secure fit.
3. Reset the system or power the system off and then on.
4. In the terminal window, press ENTER.
5. The system will interrogate the enclosure and return a list of cards installed and their slot locations.

Example: 08: **MT113-100**

NOTE: Only cards supporting the menu feature will be displayed.

5. Find the two digit number representing the card ID whose setup requires changing. They will be the first two characters in the line.
6. Enter the two digit number associated with the card, and a menu with options available for that card will appear on the screen. In the example above, press "08".

**WARNING:** Do NOT enter any characters except those relating to the desired menu. Pressing ENTER after "08" will force the system back to the original prompt.

7. After selecting the **MT113-100** as described above, the system will prompt for selections specific to that card.
8. Read each menu carefully, and continue selecting keys as prompted for further functions. (Example prompt: "Key= ")

## 7.4.3 MENU TYPES

### 1. MAIN MENU

The first menu displayed after selecting the card is the Main Menu. This menu provides access to the main functions related to the card. Press the key representing the menu item for access. A sub menu will appear next.

### 2. SUB MENU

Each sub menu will display either another menu (sub menu) or a list of available options or settings. Press the key corresponding to the menu choice to change a setting or select the next menu.

**NOTE:** Pressing the ESCAPE (ESC) key in most menus will take you up to the previous menu without making changes in the current menu.

## 7.4.4 MENU MODE EXAMPLES

All MENU MODE examples assume an **MT113-100/101** is installed in slot #1. Start by clicking the mouse in the terminal window. Press ENTER and a list of available cards will be displayed.

**NOTE** When entering numeric values (not selecting menu items) the system may echo each character as it is typed. For example, entering a volume of 03 may appear as 0033 on the screen. This depends on the settings of the control software being used.

### 1. Select THIS CARD for control

Follow the keystrokes below to select Input 3 as the source input.

Enter	List available cards
01	Select MT113-102 in slot #1
1	Select CONTROL Menu
1	Select Card/Group Select
0	Select This Card (card #1)
ESC	Return to CONTROL Menu
ESC	Return to the MAIN Menu

## 2. Set Input 3 Volume

Starting from the Main Menu, set Input 3 volume level to 16. Follow the keystrokes below.

- 2 Select SETUP Menu
- 2 Select Set Input Volume
- 3 Select Input 3 Volume
- 16 Enter 16

NOTE The system may echo the 1 and the 6 entries, depending on the settings.

- ESC Return to SETUP
- ESC Return to the MAIN Menu

## 3. Set Output Volume

Starting from the Main Menu, set the output volume level to 16. Follow the keystrokes below.

- 1 Select CONTROL Menu
- 4 Select VOLUME
- 1 Select OUTPUT volume
- 111... Press '1' to increase volume level until 16 is reached.

- ESC Return to VOLUME Menu
- ESC Return to CONTROL menu
- ESC Return to the MAIN Menu

## 4. Set Ramp Time

Starting from the main menu, set the ramp time to 10 seconds. Follow the keystrokes below.

- 2 Select SETUP Menu
- 3 Select Set Ramp Time
- 4 Select Ramp Time = 10 seconds
- ESC Return to SETUP menu
- ESC Return to the MAIN Menu

## 5. Display Card Status

Starting from the Main Menu:

- 3 Displays card status

NOTE: The status will be displayed, followed by the Main Menu being redisplayed.

## TROUBLESHOOTING GUIDE

8

We have carefully tested and have found no problems in the supplied **MT113-100/101**; however, we would like to offer suggestions for the following:

### 8.1 FAN DOES NOT SPIN

**Cause 1: Card cage is not plugged into power outlet.**

Solution: Plug card cage in. If the fan turns on, the problem is solved. If the fan is still not on, see Cause 2.

**Cause 2: Card is not plugged in all the way.**

Solution: Push the card in all the way. If the fan still does not spin, see Cause 3.

**Cause 3: Card cage slot has a problem.**

Solution 1: Test the card in other slots. If the slot was damaged, the card may work in other slots. If other slots work, and the fan is on, the problem is the card cage slot. The card cage may require service. Call ALTINEX at (714) 990-2300. If other slots do not work, see Solution 2.

Solution 2: Take any other known good card with an LED or fan and verify that the slot used is good by seeing if the other card's LED (or fan) turns on. If so, then the original card may be the source of the problem. Call ALTINEX at (714) 990-2300.

### 8.2 NO SOUND

**Cause 1: The source has a problem.**

Solution Check the source and make sure that it is working at an appropriate volume level and all source connections are correct. If the source is working and there is still no sound, see Cause 2.

**Cause 2: The card settings are wrong.**

Solution: Verify the card volume settings are at maximum and that mute is off. (See section 7). If no sound is present, see Cause 3.

**Cause 3: Cable connections are incorrect.**

Solution: Make sure the cables are connected properly and that the continuity and wiring are good. If there is still no sound present, see Cause 4.

**Cause 4: The destination amplifier is bad.**

Solution 1: Make sure that the destination amplifier is powered. If there is still no sound, see Solution 2

Solution 2: Set the volume of the destination amplifier to a reasonable level. If there is still no sound, call ALTINEX at (714) 990-2300.

### 8.3 SOUND DISTORTION

**Cause 1: Source level is above 1Vp-p.**

Solution1: Verify the source level is below 1 Vp-p. If the sound is still distorted, call ALTINEX at (714) 990-2300.

### 8.4 SOUND LEVEL IS LOW

**Cause 1: Volume levels are inappropriate.**

Solution 1: Turn up the source volume. If sound level is still low, see Solution 2.

Solution 2: Increase the destination amplifier volume. If the sound level is still low, see Cause 2.

**Cause 2: Poor signal transmission.**

Solution: Check the cables for continuity. Verify the connections are wired properly and that there is good signal transmission. NOTE: Test the system by removing the card from between the source and the destination amplifier. If the problem persists, call ALTINEX at (714) 990-2300.

## ALTINEX POLICY

**9**

### 9.1 LIMITED WARRANTY/RETURN POLICY

Please also see the Altinex website at [www.altinex.com](http://www.altinex.com) for details the on warranty and return policies.

### 9.2 CONTACT INFORMATION

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