MT108-107 is shown above.

MANUAL PART NUMBER: 400-0193-002

MT108-107

4-IN, 4-OUT STEREO AUDIO LINE

DRIVER CARD FOR MULTI-TASKER™

USER'S GUIDE

ALTINEX

SiGNAL MANAGEMENT SOLUTIONS™

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ALTINEX

PRECAUTIONS / SAFETY WARNINGS   1

Please read this manual carefully before using your **MT108-107** Line Driver. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **MT108-107** 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.

1.2 INSTALLATION

- To prevent fire or shock, do not expose this unit to rain or moisture. Do not place the **MT108-107** 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 **MT108-107** carefully. Dropping or jarring can damage the card.

- Do not pull the cables attached to the **MT108-107**.

- Insert the card carefully into the slots of the Multi-Tasker™ without bending any edges.

- When removing a card, please make sure that the expansion 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 own expense.

- Any changes or modifications to the unit not expressly approved by ALTINEX, Inc. could void the user's authority to operate the equipment.

MT108-107
4-in 4-out Stereo Audio Line Driver Card

The **MT108-107** is a Stereo Audio Line Driver Card designed for use with the Multi-Tasker™ system. When installed in a Multi-Tasker™, this card allows the connection of four stereo audio sources to four receiving devices, which can include cassette recorders, mixers, and/or amplifiers for sound reinforcement systems.

These cards are ideal for distributing audio to recording devices in dubbing racks using simple off-the-shelf cables. As an example, the **MT108-107** can distribute audio to four cassette recorders or it can handle the audio portion of A/V distribution to four VCRs.

As a "transparent" line driver, this card utilizes AC coupling on its inputs for ideal signal transfer characteristics. The power indicator on the card is a red LED indicating the card is receiving power. This card consumes one slot.

The **MT108-107** also has the ability to independently turn on or off each output under the control of RS-232 commands sent to the Multi-Tasker™ enclosure.

FEATURES/DESCRIPTION	MT108-107
GENERAL	
Inputs	4
Input Connector	Four 3.5mm stereo mini Female audio jacks
Outputs	4
Output Connector	Four 5-pin Terminal Blocks
Compatibility	Stereo Audio

Table 1. **MT108-107** General

MECHANICAL	MT108-107
Basic Enclosure Slots Required	One
Weight	1.0 lb. (0.45 kg)
Connector Panel	Black
T° Operating	10°C-40°C
T° Maximum	0 to 50°C
Humidity	90% non-condensing
MTBF (calc.)	45,000 hrs

Table 2. **MT108-107** Mechanical

ELECTRICAL	MT108-107
Input Signals	
Max Level	0 dBu
Impedance	600 Ohms
Audio Throughput	
Gain	0 dB
Frequency Response	10 Hz to 20 kHz (+/- 0.05 dB)
Noise Floor	-100 dB @ 20 kHz
CMRR	>80 dB, 10 Hz to 20 kHz
Output Signals	
Level, Each Channel	1V p-p
Impedance	600 Ohms
Gain	0 dB
Power	

Power from MT100-100	+6V	-6V	+13V	-13V	Power Consumption
MT108-107	20 mA	-	135 mA	83 mA	3 watts

Table 3. **MT108-107** Electrical

DESCRIPTION OF MT108-107   4

TOP RETAINER SCREW

MT108-107

POWER LED

AUDIO INPUT 1

AUDIO OUTPUT 1

AUDIO INPUT 2

AUDIO OUTPUT 2

AUDIO INPUT 3

AUDIO OUTPUT 3

AUDIO INPUT 4

AUDIO OUTPUT 4

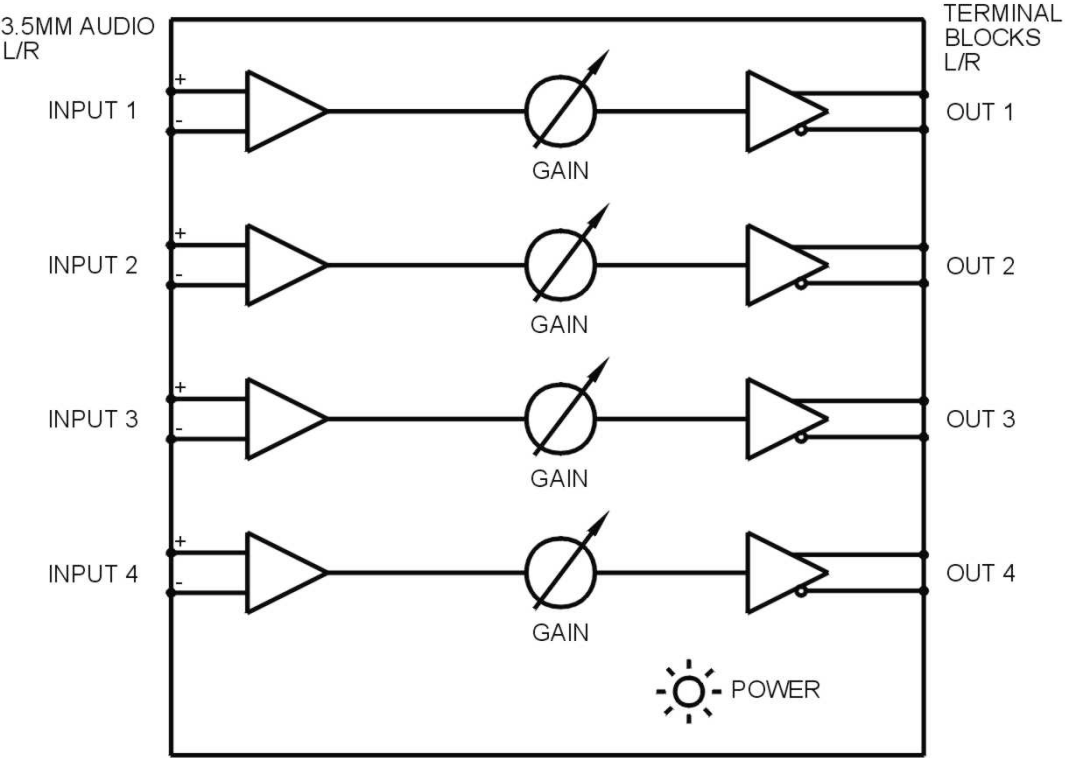BOTTOM RETAINER SCREW
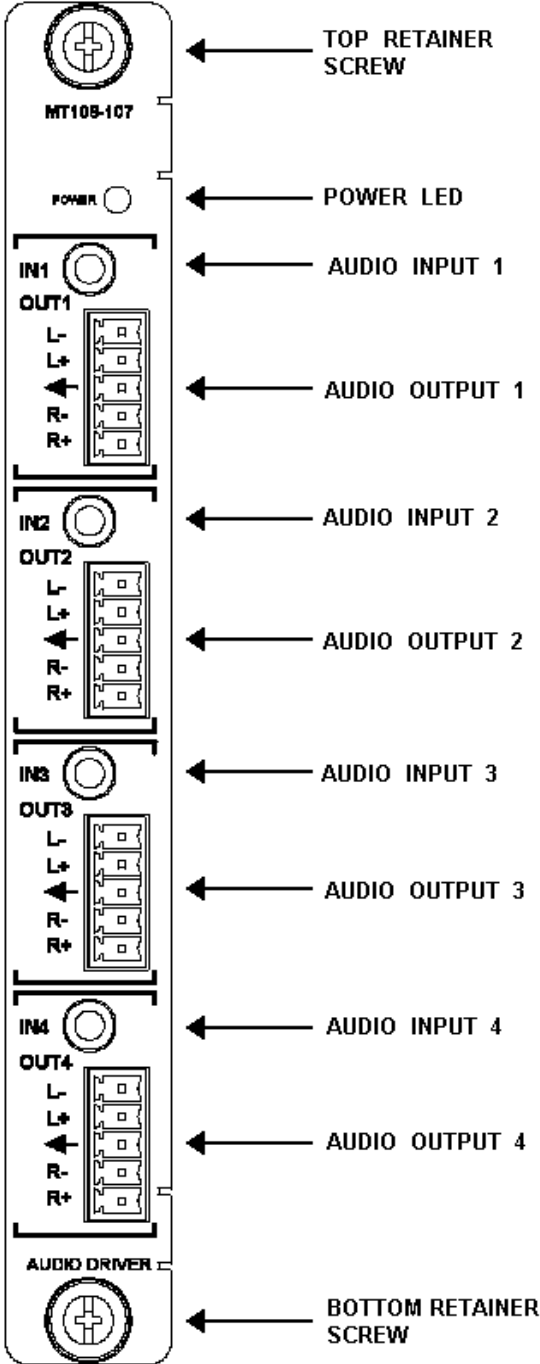
APPLICATION DIAGRAM   5

Application 1
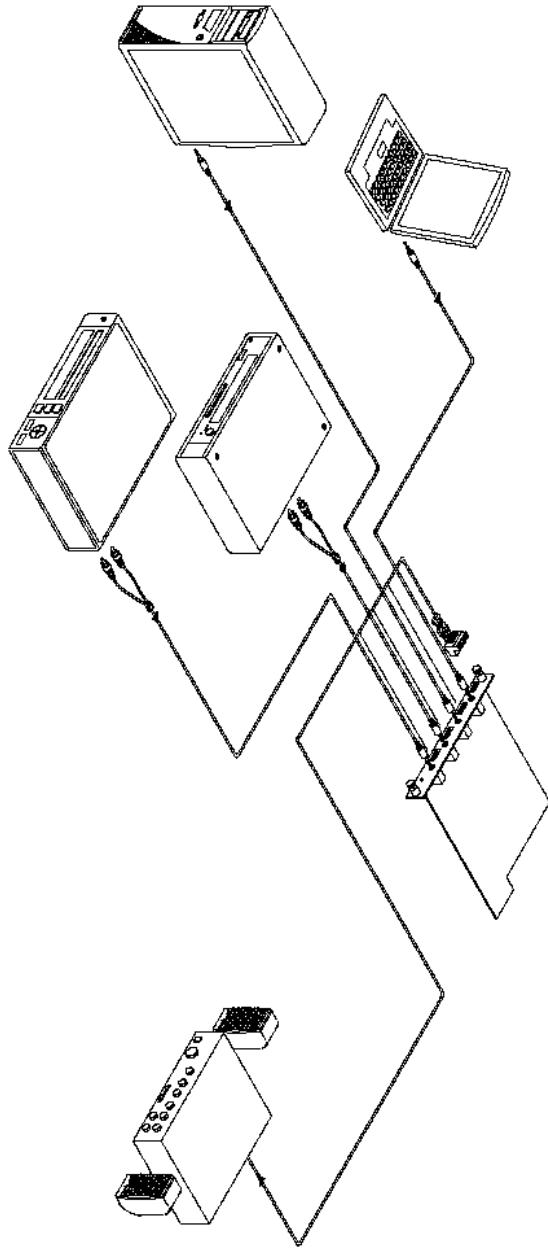
Application Diagram 2: Internal View of the MT108-107

4 X 3.5MM TO TERMINAL BLOCK + AUDIO DRIVER + GLI + STEREO + GAIN CONTROL POT

INSTALLING YOUR MT108-107　　　　6

Step 1. Slide the **MT108-107** into an available slot in the Multi-Tasker™ Basic Enclosure in order to connect to the bus. Make sure that the **MT108-107** Stereo Audio Card fits into place. Secure the card to the Multi-Tasker™ by tightening the retainer screws located on the top and bottom of the **MT108-107** Stereo Audio Card.

Step 2. The LED on the card panel will turn red indicating that the card is in full operation. An LED that is blinking red indicates that the card is experiencing a problem. If the LED is blinking, see the Troubleshooting Guide in section 8.

Step 3. Connect an audio cable from the audio source to the input connector of the **MT108-107**. Connect any or all of the four available outputs of the **MT108-107** to audio equipment.

Step 4. Starting from the left of the Enclosure, identify the slot number the **MT108-107** card is plugged.　Note that it is for RS-232 control.

OPERATION　　　　　　　　　　7

7.1 RS-232 CONTROL

When used in the Multi-Tasker™ Basic Enclosure, the **MT108-107** has many advanced remote control capabilities, which are accessible through a 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 **MT108-107** are in a simple ASCII character format.

1. Square brackets "[　]" are part of the command.

2. Use uppercase letters for all commands.

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
U2 = Unit ID

For detailed information regarding function, see each command description.

Card ID is an assigned value from 1 to 19, based upon which slot the card is in. The Card ID 0 (C0) is used for the controller (see user's guide for the MT100-100). Changing the position of a card will significantly affect the commands recorded on software definitions or a third party control system.

Unit ID has a value from 0 to 9. The Unit ID 0 should be used for single unit operation. If the Unit ID is set to 0, then each command can be used without Ui (use command [SETU0]; see user's guide for the MT100-100).

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 of the **MT108-107** card.

Command Format: VERCnUi

Cn = card ID number (n = # from 1 to 19) (1-8 for MT100-101 or 1-4 for MT100-106)

Ui = Unit ID (i = # from 0 to 9) (refer to the MT100-100 user's guide for explanation)

Example:

One **MT108-107** card is plugged into slot #2 of unit 3. Send the command **[VERC2U3]**. The Multi-Tasker™ Basic Enclosure will return feedback as: MT108-107 690-0127-007

MT108-107 = card type
690-0127-007 = software version

2. [C]

This command receives the status of the card.

Command Format: **[CnUi]**

Cn = card id (n = from 1 to 19)
(1-8 for MT100-101 or 1-4 for MT100-106)

Ui = unit id (i = from 0 to 9) (refer to the MT100-100 user's guide for explanation)

Example:

If one **MT108-107** card is plugged in slot #2 of unit 3, sending the **[C2U3]** command, the Multi-Tasker™ Basic Enclosure will return feedback as:

Vol1=16/16
Vol2=12/16
Vol3=8/16
Vol4=4/16

There are 16 levels for amplitude. In the above example, Input 1 (Vol1) is at level 16 out of 16 or maximum amplitude. Input 2 is at 12 or ¾ amplitude. Input 3 is at ½ volume and Input 4 is at ¼ volume.

If there is no card plugged into slot #2 of unit 3, the Multi-Tasker™ Basic Enclosure will not return any feedback.

3. [CiS]

This command saves the current status of the card's output volume configuration. This configuration will be restored after system is reset or powered off then on.

Ci = card number

S = save configuration

If Outputs 1 and 2 are at volume level 16 and outputs 3 and 4 are at level 8, the feedback after sending the command [C4S], for slot 4, would be:

Vol1=16/16
Vol2=16/16
Vol3=8/16
Vol4=8/16

Card Status Saved

4. [+] or [-]

This command increases or decreases volume. It immediately follows the [SEL] command. Any command other than [+] or [-] will reset the previous selection and the [SEL] command will need to be reissued.

Example:

If the status of audio card 2 of unit zero is as follows:

Vol1=16/16
Vol2=0/16
Vol3=0/16
Vol4=0/16

Send the commands:

[SEL1C2] [-] [-]
[SEL2C2] [+] [+]
[C2]

The new status will be as follows:

Vol1=14/16
Vol2=2/16
Vol3=0/16
Vol4=0/16

Note: The [SEL], [+], and [-] commands can also be used to control the volume for a group of cards.

Command Format: [SELmGkUi]

SELm = select output (m = from 1 to 4)

Gk = group number (k = # from 1-9)

Ui = unit id (i = # from 0-9)

Example:

If cards 1, 2, and 3 are grouped as group 5 of unit 1, send the command [SEL1G5U1]. Then send the commands [+], and [-] to increase or decrease the volume for cards 1, 2, and 3 simultaneously.

5. [SEL]

This command selects the individual input for adjusting the volume level of each output.

Command Format: [SELmCnUi]

SELm = volume select for output m. (m = 1-4)

Cn = card ID (n = from 1 to 19)
(1-8 for MT100-101 or 1-4 for MT100-106)

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

After the [SEL] command is executed, the [+] and [-] commands must be executed immediately in order to increase or decrease the volume. Any other command (or an empty command such as [ ]) will terminate the [SEL] command.

6. [VOL]

This command allows the Multi-Tasker to send an absolute volume level to the **MT108-107**.

Command Format: [VOLmAnCi]

VOLm = output select (m = 1 to 4)

An = amplitude level (n = 0 to 16)

Ci = card ID (i = from 1 to 19)
(1-8 for MT100-101 or 1-4 for MT100-106)

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

Example:

If there is an MT108-107 card in Slot 4 of Unit 0, sending the command [VOL1A16C4] will set the volume of output 1 to the maximum level of 16.7. [CLR] – Card

The command clears all volumes to maximum for a single card. With this command, 200ms is needed for execution. Insert a 200ms delay [WAIT] time after sending this command.

[CLRCnUi]

Cn = card ID No. (n = slot # from 1 to 19)
(1-8 for MT100-101 or 1-4 for MT100-106)

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

After [CLR] is executed, send [Cn] and receive feedback as:

Vol1=16/16
Vol2=16/16
Vol3=16/16
Vol4=16/16

8. […S] – Save

This command will save the volume configuration command being sent in memory. When sending the command [VOL1A10C4**S**], after reset or power up, the volume level of output 1 on C4 will be level 10.

9. [CLR] - Group

This command clears the members for all nine groups.

[CLRGkUi]

Gk = group number (k = # from 1-9)

Ui = unit number (i = # from 0-9)

Example:

a) To clear group #1, send the command [CLRG1U1]. This command clears the members for the specified group only.

b) To clear all groups of unit 1, send the command [CLR G[U1].

10. [WR]

This command groups multiple cards in the MT100-100 Enclosure. Each unit contains a maximum of nine groups.

Command Format: [WRCn…GkUi]

Cn = card ID No. (n = slot # from 1 to 19)

(1-8 for MT100-101 or 1-4 for MT100-106)

Gk = group number (k = # from 1-9)

Ui = unit number (i = # from 0-9)

Example:

To group cards #1, 2, and 3 as group 5 of unit #1, send the command [WRC1C2C3G5U1]. After executing this command, cards 1, 2, and 3 of unit 1 will be grouped together as group 5.

11. [RD]

This command displays the members in each group.

Command Format: [RDGkUi]

Gk = group number (k = # from 1-9)

Ui = unit number (i = # from 0-9)

member = C1 - C19 (card 1 to 19)

Example:

To read member data for group 1 of unit 1, send the [RD] command. The system will return feedback as C1C2C3 G5U1.

7.3 SUMMARY OF COMMANDS

1) **[VER]**   **Receives software version**

2) **[C]**   **Receives status of the card**

3) **[CiS]**   **Saves current status of the card**

4) **[+]**   **Increases or decreases volume**
   [-]   **(executed immediately after the [SEL] command)**

5) **[SEL]**   **Selects the volume for each individual output**

6) **[VOL]**   **Groups multiple cards**

7) **[CLRC]**   **Clears a single group or multiple groups**

8) **[CLRG]**   **Clears a group**

9) **[..S]**   **Save volume being sent**

10) **[WR]**   **Groups multiple cards**

11) **[RD]**   **Displays members in each group**

TROUBLESHOOTING GUIDE   8

We have carefully tested and have found no problems in the supplied **MT108-107**; however, we would like to offer suggestions for the following:

- 8.1 LED IS NOT LIT
- 8.2 NO SOUND
- 8.3 SOUND DISTORTION
- 8.4 SOUND LEVEL IS LOW

8.1 LED IS NOT LIT

Cause 1:   Card cage is not plugged in.

Solution: Plug card cage in. If the LED lights, the problem is solved. If the LED is still not lit, see Cause 2.

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

Solution: Push the card in all the way. If the LED is still not lit, see Cause 3.

Cause 3:   Card cage slot has a problem.

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

Solution 2: Take any other known good card with an LED and verify that the slot used is good by seeing if the other card's LED lights in that slot. If it lights, 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 output is turned OFF.

Solution 1: Turn ON the card output that is used. See RS-232 accessible commands in section 7. If no sound is present, see Solution 2.

Solution 2: If there is still no sound, see Cause 3.

Cause 3: Cable connections to the destination are incorrect.

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

Cause 4: The destination amplifier has a problem.

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: The source level is above 1V p-p.

Solution: Make sure that the source level is below 1V p-p. If the sound is still distorted, see Cause 2.

Cause 2: The destination amplifier provides excessive amplification.

Solution 1: Make sure that the source signal level is high enough so that the destination amplifier does not have to provide excessive amplification and thereby distort the signal. If there is still sound distortion, see Solution 2.

Solution 2: Call ALTINEX at (714) 990-2300.

8.4 SOUND LEVEL IS LOW

Cause 1: The volume levels are inappropriate.

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

Solution 2: Turn up 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 and make sure that connections are wired properly to verify that there is good signal transmission.

NOTE: Test the system by removing the MT108-107 card from between the source and the destination amplifier. If problem persists, call ALTINEX at (714) 990-2300.

ALTINEX POLICY   9

9.1 LIMITED WARRANTY / RETURN POLICY

Please see the Altinex website at www.altinex.com for details on warranty and return policy.

9.2 CONTACT INFORMATION

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