Multi Tasker™

MANUAL PART NUMBER: 400-0367-004

MT107-103

64X64 AUDIO MATRIX SWITCHER

FOR MULTITASKER™

USER'S GUIDE

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MULTITASKER™

PRECAUTIONS / SAFETY WARNINGS 1

Please read this manual carefully before using your **MT107-103**. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **MT107-103** 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 **MT107-103** 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 **MT107-103** carefully. Dropping or jarring can damage the card.

- Do not pull the cables that are attached to the **MT107-103.**

- Insert the card carefully into the slots of the MultiTasker without bending any edges.

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 their expense.

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

MULTITASKER™

MT107-103
64 X 64 Audio Matrix Engine

The **MT107-103** is a 64X64 Matrix Engine used for connecting balanced audio signals. The Matrix Engine has 8 balanced audio inputs and 8 balanced audio outputs built-in. Additional inputs and outputs may be added using input and output audio expansion cards. The expansion cards are mounted to the engine with specially provided cables.

The audio input signals are buffered to the matrix switcher through individual, differential line receivers. The **MT107-103** will accept balanced or unbalanced inputs. The input preset and mute controls may be applied to any individual input and are software controlled for flexibility.

All control of the Matrix Engine is maintained through the MultiTasker enclosure. The engine may be controlled using the RS-232 bus, or by preprogramming the MultiTasker enclosure. Programming the enclosure eliminates the need for having an external computer to control the Matrix Engine.

An audio signal detection circuit is present on all inputs and outputs in order to make troubleshooting easier. Each of the outputs is driven by a balanced audio line driver. The output impedance is low and is capable of driving signals into 600 ohms, including applications requiring long cable lengths.

The Matrix Engine may be easily configured to meet customer requirements by selecting the appropriate number of switching elements. Selecting the proper configuration may be achieved using MTSetup. The switching elements within the matrix switcher are available in steps of 16 and made possible through the modular design of the Matrix Engine.

FEATURES/ DESCRIPTION	MT107-103
GENERAL	
Inputs	8 (2 per Term. Block)
Input Connectors	5-pin Term. Block
Outputs	8 (2 per Term. Block)
Output Connector	5-pin Term. Block
Compatibility	
Signal types	Balanced Audio

Table 1. **MT107-103** General

MECHANICAL	MT107-103
Enclosure Slots Required Base Configuration	2 Slots
Enclosure Slots Required Add On Cards	1 Slot per Card
Weight	1.1 lb (0.5 kg)
Connector Panel	Black Anodized
T° Operating	10°C-50°C
T° Maximum	75°C
Humidity	90% non-condensing
MTBF (calc.)	50,000 hrs

Table 2. **MT107-103** Mechanical

ELECTRICAL	MT107-103
Input Signals	
Impedance	10K Ohms
Analog Signal Level	0dBu
Output Signals	
Impedance Analog	Low - Drives 600 Ohms
Gain	6dB +/-0.5dB
Frequency Response	10Hz to 20KHz +/- 0.5dB

Table 3. **MT107-103** Electrical

ALTINEX

SIGNAL MANAGEMENT SOLUTIONS

PRODUCT DESCRIPTION   4

TOP RETAINER SCREW

MT107-103

INPUT   OUTPUT

AUDIO INPUTS   AUDIO OUTPUTS

AUDIO MATRIX ENGINE

BOTTOM RETAINER SCREW

ALTINEX

SIGNAL MANAGEMENT SOLUTIONS

Tel: 714-990-2300 • Toll-Free: 1-800-ALTINEX • FAX: 714-990-3303 • E-mail: solutions@altinex.com • Web: www.altinex.com
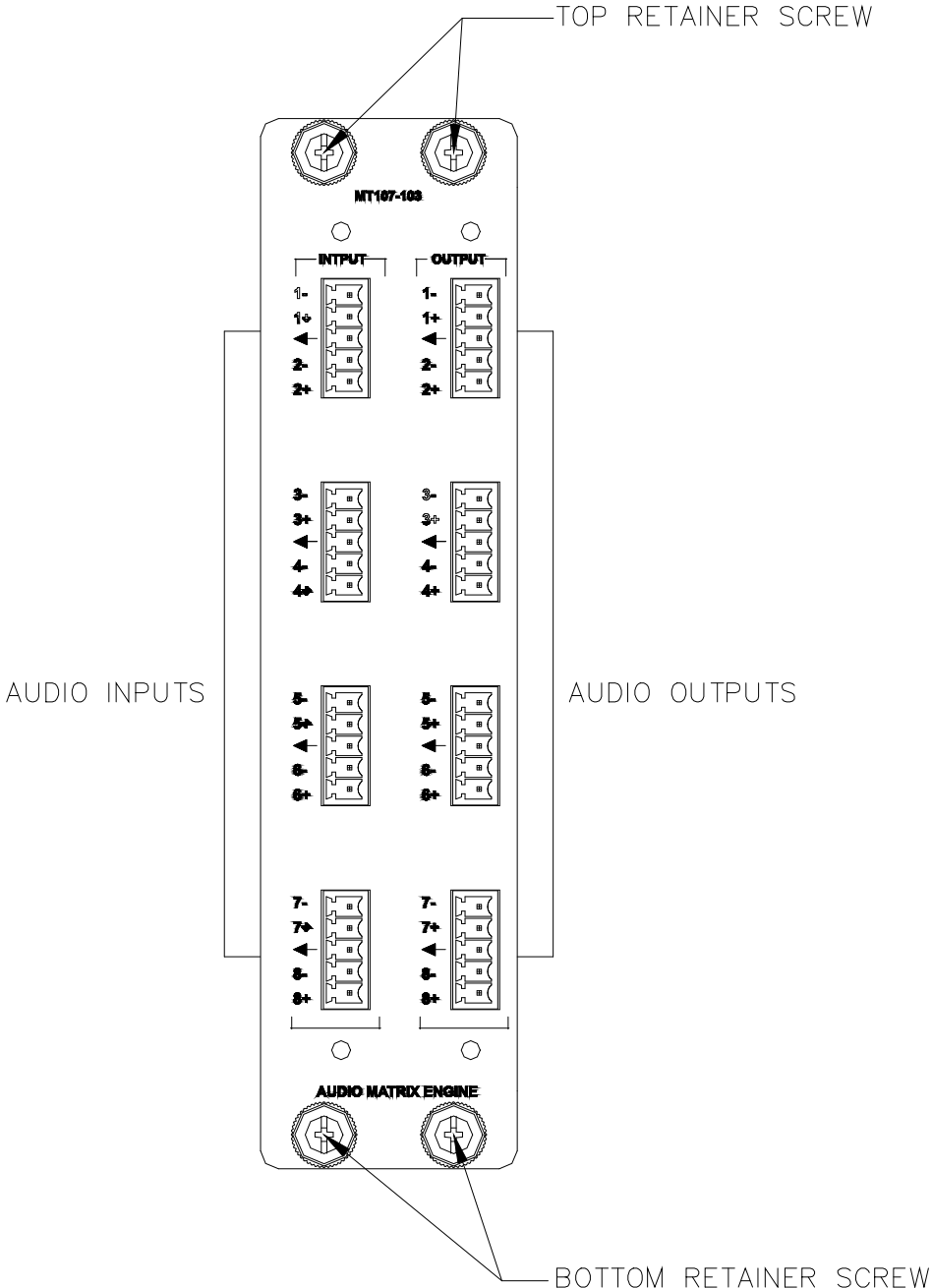
APPLICATION DIAGRAM   5

DIAGRAM 1: TYPICAL CONFIGURATION
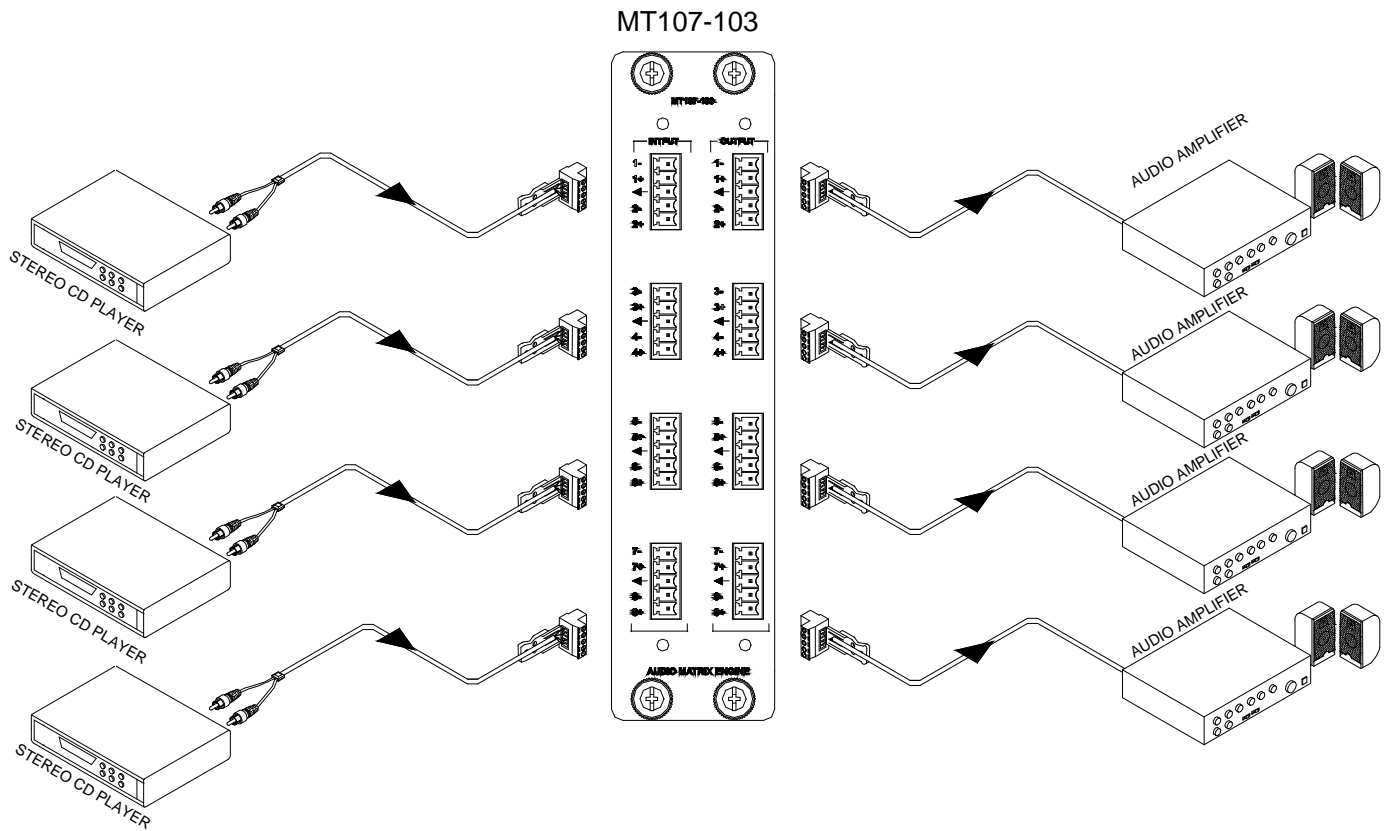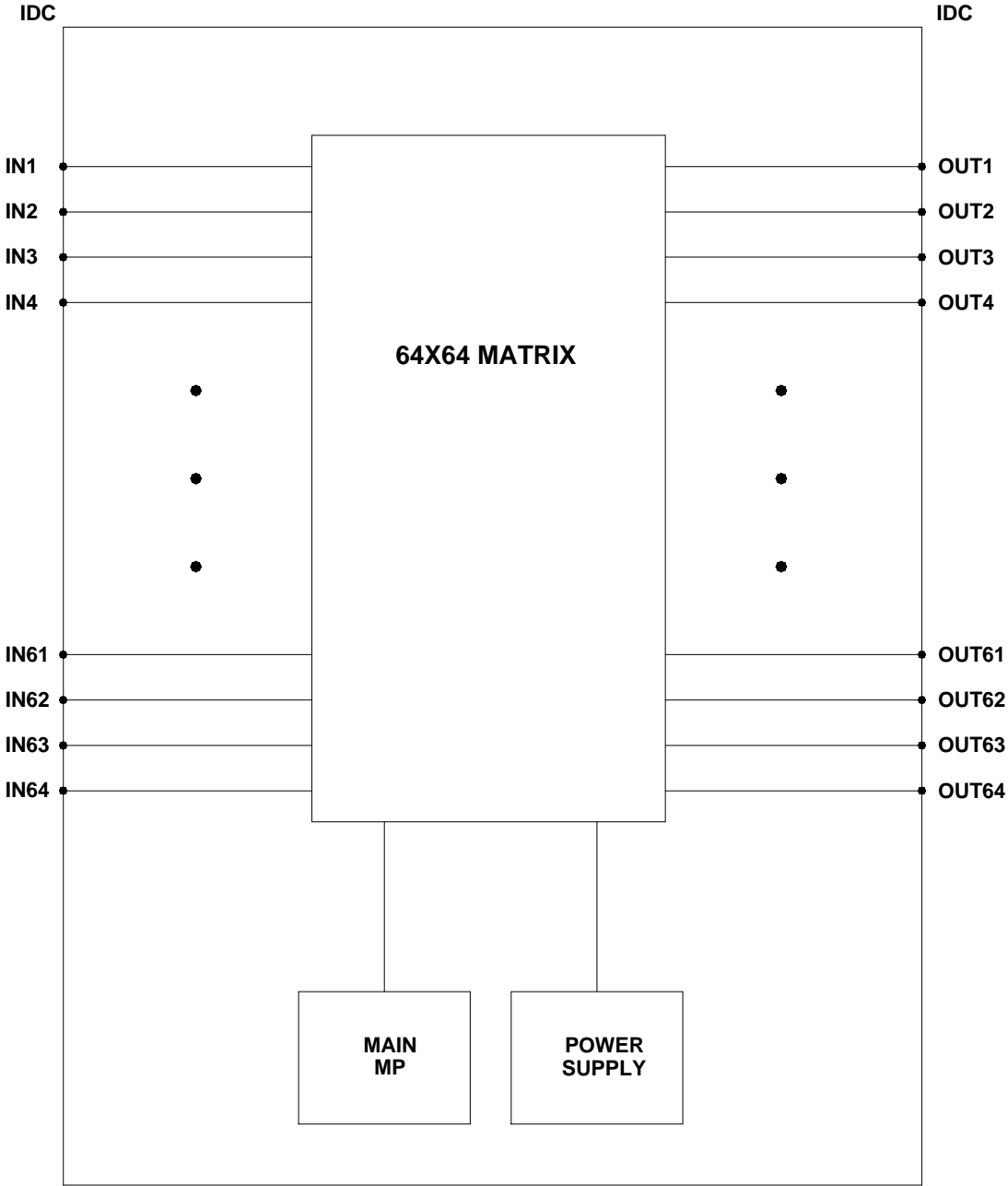
MT107-103

DIAGRAM 2 INTERNAL VIEW

MT107-103, 64X64 Audio Matrix Engine

INSTALLING YOUR MT107-103   6

Step 1. Determine the number of slots required for the **MT107-103**, including the add-on cards. The base **MT107-103** requires two slots, and a fully loaded 64X64 Matrix engine requires 16 slots.

Step 2. Turn off power to the enclosure and remove the AC power cord.

Step 3. Remove the necessary slot covers to allow the new cards to be installed.

Step 4. Carefully, slide the **MT107-103** into available slots in the MultiTasker Enclosure in order to connect to the bus. Make sure that the **MT107-103** cards fits into place.

Step 5. Secure the cards to the MultiTasker by tightening the retainer screws located on the top and bottom of each card.

Step 6. Reconnect the AC power cord and turn on the enclosure power.

Step 7. Connect a cable from the audio source to one of the input connectors on the **MT107-103** and one of the output connectors to an amplifier or other device through a cable.

Step 8. Starting from the left, identify the slot number where the **MT107-103** INPUT CONNECTOR CARD is plugged into the Enclosure. Make note of the slot number. It is required for RS-232 control.

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7.1 RS-232 CONTROL

The **MT107-103** has many advanced remote control capabilities which are accessible through standard RS-232 communication. Actual control may 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 **MT107-103** are in a simple ASCII character format.

> 1. **Square brackets "[ ]" are part of the command.**
>
> 2. **Use uppercase letters for all commands.**

The cards in a MultiTasker system are capable of performing various functions, as well as providing feedback to the user or control system. Commands instruct a card to perform specific actions or request information about the status of the card. Some commands do both simultaneously.

A command that instructs the card to simply perform an action will generate feedback of "[ ]". The open bracket immediately followed by a close bracket indicates the card received a valid command. If the command requested information from the card, the feedback generated by the card is the acknowledgement of having received a valid command. Invalid commands generate feedback of "[ERR001]".

After processing a command, an "OK" or [ERR001] 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 a unique identifier. It is equal to the enclosure slot number, or it may be an assigned value. As the slot number, the value can range from 1 to 4 up to 1 to 20 depending on the enclosure. If the value is assigned, the ID may be a maximum of 99.

Card ID 0 (C0) is used for the controller and cannot be reassigned.

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. **[C]**

   This command displays the active matrix configuration settings.

   Command Format: [CnUi]

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

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

   Example:

   There is an **MT107-103** in slot 5, sending the command, [C5], will return feedback similar to the following:

   Matrix mode:non-blocking

   Matrix number:1

   Matrix size:64X64

   Input offset:0

   Output offset:0

   Channel width:1

   Channel space:0

   Ch1 In1 Out1 ON AudioL32

   Ch1 In1 Out2 ON AudioL32

   …

   Ch1 In64 Out64 ON AudioL32

Description of Feedback:

The first line shows the matrix in non-blocking mode. The next line lists the matrix number, 1 to 9. The next five lines describe the properties of the matrix. The remaining lines are channel specific.

Matrix 1 is the active matrix. Matrix 1 is a 64X64 matrix with no input offset and no output offset. The channel width is one and the channel spacing is zero. All 64 channels are on, the input audio level is set to the maximum of 32 and each input is connected to its corresponding output.

2. **[CLR]**

   This command resets the **MT107-103** to the last saved matrix configuration. It does not effect the blocking mode.

   Command Format: [CLRCnUi]

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

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

   Example:

   Clear the **MT107-103** with Engine Card in slot 5. To do this, send the command [CLRC5].

3. [TEST]

This command performs a series of internal tests on the matrix engine memory.

Command Format: [TESTCnUi]

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

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

Upon completion, the system will display the results. This feedback will be similar to the following, otherwise failures will be indicated.

MEMORY IC TEST RESULTS:
MEMORY IC PASS

4. [VER]

This command displays the firmware version and model number for the **MT107-103** card.

Command Format: [VERCnUi]

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

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

Example:

There is an **MT107-103** card is in slot 5. Send the command [VERC5] and the MultiTasker will return feedback as:

[MT107-103 690-0159-006 C05]

MT107-103 = the card model

690-0159-006 = the software version

C05 = card ID number

5. [MAT]

This command sets the matrix configuration for the matrix engine.

Command Format:

[MATj;mm;ww;xx;yy;kk;ll;CnUiS]

j = Matrix ID (j = # from 1 to 9)

The following properties <u>MUST</u> be entered in two (2) digit format.

mm = Inputs (2 digit # from 01-64)
zz = Outputs (2 digit # from 01-64)
xx = Input Offset (2 digit # from 00-99)
yy = Output Offset (2 digit # from 00-99)
kk = Channel Width (2 digit # from 01-32)
ll = Channel Spacing (2 digit # from 00-31)
Cn = Engine Card Slot Number
  (The slot number of the LEFT card of the engine is the Engine Card Slot number.)
Ui = Unit ID (i = # from 0 to 9)
S = Save
  This property saves the configuration to Matrix ID memory and will allow the configuration to be recalled any time, even after power up or reset.

  Adding the 'S' to the command will also make the matrix configuration the default at power up. The last configuration ID created and saved will be the default at power up.

  In order to change the power up default without having to redefine the settings, see the command [MjCnS].

Matrix Configuration Definitions:

1. Matrix ID: A total of 9 matrix configurations may be defined in a single engine. Once saved, the configuration may be recalled by number without having to redefine the settings.

2. Number of Inputs: The number of inputs in the configuration, or eight times the number of input cards installed is the maximum.

   If the channel width and spacing are different, then the number of inputs will be lower. For example, in a 32X32 matrix with a width of 4 and a spacing of 7, the number of inputs would be 8. See Example 1 in this section for specifics.

3. Number of Outputs: *Same as for Inputs.*

4. Input Offset: The offset defines where Input #1 will be in reference to Input #1 on the Input Connector Card. Typically, Input #1 would be Input #1 of the base card. However, an offset of 8 will make Input #1 start at the actual Input #9.

5. Output Offset: *Same as for Input Offset.*

6. Channel Width: The number of signals per channel. The default width is one.

7. Channel Spacing: The default spacing is zero. When dealing with multi-cabled signals, the spacing is typically one less than the number of inputs on a single card.

Matrix Assembly Layout:

Input cards count from the main Input Connector Card, RIGHT to LEFT.

Output cards count from the main Output Connector Card, LEFT to RIGHT.

The following table illustrates the card and channel numbering. The channel numbering is based upon the default configuration. The default configuration is configured as a 64X64 Matrix with the following settings:

Number of Inputs = 64

Number of Outputs = 64

Input Offset = 00

Output Offset = 00

Channel Width = 01

Channel Spacing = 00

Default Configuration

INPUT CARDS					OUTPUT CARDS				
8	**…**	**3**	**2**	**1**	**1**	**2**	**3**	**…**	**8**
Add On		Add On	Add On	Base Unit	Base Unit	Add On	Add On		Add On
57		17	9	1	1	9	17		57
58		18	10	2	2	10	18		58
59	Ç	19	11	3	3	11	19	è	59
60		20	12	4	4	12	20		60
61		21	13	5	5	13	21		61
62		22	14	6	6	14	22		62
63		23	15	7	7	15	23		63
64		24	16	8	8	16	24		64

Example 1: [MAT1;08;08;00;00;04;07;C5S]

Inputs = 08

Outputs = 08

Input Offset = 00

Output Offset = 00

Width = 04

Spacing = 07

In the charts below, the cards are in groups of four to help illustrate the CHANNEL WIDTH definition.

In this configuration, if Input 1 is connected to Output 8, the entire channel, 1a, 1b, 1c and 1d, will be switched to outputs 8a, 8b, 8c and 8d respectively.

Input Cards

4	3	2	1
1d	1c	1b	1a
2d	2c	2b	2a
3d	3c	3b	3a
4d	4c	4b	4a
5d	5c	5b	5a
6d	6c	6b	6a
7d	7c	7b	7a
8d	8c	8b	8a

Output Cards

1	2	3	4
1a	1b	1c	1d
2a	2b	2c	2d
3a	3b	3c	3d
4a	4b	4c	4d
5a	5b	5c	5d
6a	6b	6c	6d
7a	7b	7c	7d
8a	8b	8c	8d

Example 2: [MAT1;16;16;00;00;02;00;C5S]

Inputs = 16

Outputs = 16

Input Offset = 00

Output Offset = 00

Width = 02

Spacing = 00

In this configuration, if Input 1 is connected to Output 16, the entire channel, 1a and 1b, will be switched to outputs 16a and 16b respectively.

Input Cards				Output Cards			
4	3	2	1	1	2	3	4
13a	9a	5a	1a	1a	5a	9a	13a
13b	9b	5b	1b	1b	5b	9b	13b
14a	10a	6a	2a	2a	6a	10a	14a
14b	10b	6b	2b	2b	6b	10b	14b
15a	11a	7a	3a	3a	7a	11a	15a
15b	11b	7b	3b	3b	7b	11b	15b
16a	12a	8a	4a	4a	8a	12a	16a
16b	12b	8b	4b	4b	8b	12b	16b

6. **[M*j*C*n*]**

This command selects the matrix to be active.

Command Format: [MjCnUi]

j = Matrix ID (j = # from 1 to 9)

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

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

Example:

There is a matrix engine in slot 5. Send the command [M1C5] to recall matrix configuration #1 of card 5.

RECALL MATRIX ON POWER UP

In order to make configuration #1 of card 5 the default configuration when power is turned on, send the [M1C5S]. The feedback will be:

[SAVEDC05]

7. **[ONmmCn]**

This command turns on a single output for the current matrix.

Command Format: [ONmmCnUi]

mm = Output Number (mm = # from 01 to 64)

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

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

Example:

There is an **MT107-103** in slot 5. Turn ON output number 64 by sending the command [ON64C5].

8. **[ONCn]**

This command turns on all outputs for the current matrix.

Command Format: [ONCnUi]

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

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

Example:

There is an **MT107-103** in slot 5. Turn ON ALL outputs by sending the command [ONC5].

9. **[OFFmmCn]**

This command turns off a single output for the current matrix.

Command Format: [OFFmmCnUi]

mm = Output Number (mm = # from 01 to 64)

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

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

Example:

There is an **MT107-103** in slot 5. Turn OFF only output number 01 by sending the command [OFF01C5].

10. **[OFFCn]**

This command turns off all outputs for the current matrix.

Command Format: [OFFCnUi]

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

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

Example:

There is an **MT107-103** in slot 5. Turn off all outputs by sending the command [OFFC5].

11. **[ImmOxxCn]**

This command connects a single input to a single output in the current matrix configuration.

Command Format: [ImmOxxCnUi]

mm = Input (2 digit # from 01 to 64)
xx = Output (2 digit # from 01 to 64)
Cn = Card ID (n = slot # from 1 to max slots)
Ui = Unit ID (i = # from 0 to 9)

Example:

Connect Input 22 to Output 32 of the engine in slot 5. Send the command [I22O32C5] and Input 22 will be connected to Output 32.

12. **[ImmO*Cn]**

This command connects a single input to all the outputs in the current matrix configuration.

Command Format: [ImmO*CnUi]

mm = Input (2 digit # from 01 to 64)
Cn = Card ID (n = slot # from 1 to max slots)
Ui = Unit ID (i = # from 0 to 9)

Example:

Connect Input 07 of the engine in slot 5 to all the outputs for that engine in its current matrix configuration. To do this, send the command [I07O*C5].

13. **[INmmSCn]**

This command returns all the output numbers that are connected to an input and enabled.

Command Format: [INmmSCnUi]

mm = Input Number (mm = # from 01 to 64)

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

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

Example 1:

There is an **MT107-103** in slot 5. Input 1 is connected to Output 1. Send the command [IN01SC5] and receive the following feedback:

[1C05]

Example 2:

There is an **MT107-103** in slot 5. Input 1 is connected to all outputs and all outputs are enabled. Send the command [IN01SC5] and receive the following feedback:

[1,2,3,4,5,6,7,8,9,10,11,12,13…,64C05]

Example 3:

There is an **MT107-103** in slot 5. Input 1 is connected to all outputs, but only outputs 1-10 are enabled. Send the command [IN01SC5] and receive the following feedback:

[1,2,3,4,5,6,7,8,9,10C05]

14. **[OUTmmSCn]**

This command returns the input number that is connected to an output if the output is enabled.

Command Format: [OUTmmSCnUi]

mm = Output Number (mm = # from 01 to 64)

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

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

Example 1:

There is an **MT107-103** in slot 5. Input 1 is connected to all outputs. Send the command [OUT01SC5] and receive the following feedback:

[1C05]

Example 2:

There is an **MT107-103** in slot 5. Input 64 is connected to Output 64, but Output 64 is disabled. Send the command [OUT64SC5] and receive the following feedback:

[0C05]

15. […P] – Path

This command will set the path for the output, but it is not active until the switch command, [SW], is executed. Commands ending in "P" are not executed immediately. The path for multiple cards or the same card can be preset.

Example 1:

An engine is in slot 5. Enable outputs 1 and 2 simultaneously, with the following commands:

[ON1C5P]

[ON2C5P]

[SW]

Example 2:

An engine is in slot 5 and a regular video switcher is in slot 1. Connect the engine's Input 1 to Output 64 while simultaneously disabling the card in slot 1. In order to accomplish this, send the following commands:

[IN1O64C5P]

[OFFC1P]

[SW]

16. [SW] – Switch

The switch command immediately connects inputs and outputs, which were previously set with the PATH command on this card or any other cards in the MultiTasker enclosure. See the PATH command for examples.

17. [SEL]

This command is the volume select command. It sets the path to adjust the input volume level of the current matrix and is used in conjunction with the [+] and [–] commands.

Command Format: [SELmmCnUi]

mm = Input (2 digit # from 01 to 64)

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

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

Example:

The Engine Card is in slot 5. Adjust the volume on Input 2. The current volume level is set to 10. After sending the following commands, a better volume level of 15 is obtained:

1. [SEL02C5]
    The current volume level is 10.

2. [−] [−] [−]
    The level is now 7 and is too quiet.

3. [+] [+] [+] [+] [+] [+] [+] [+]
    The level is now 15 and no further adjustments are required.

18. [+]

This command increments a selected property to be adjusted from the keyboard or front panel.

Command Format: [+], [+k]

[+] = Increment level by one step

[+k] = Increment level by 'k' steps

Example:

Adjust Input 1 volume level for the card in slot 5. The current input level is 10, but it is not the optimal value. After sending the following commands, an optimum level of 15 is obtained:

1. [SEL01C5]
    The current input level is 10.

2. [+] [+] [+] [+] [+] or [+ 5]
    The level is now 15 and no further adjustments are required.

19. [-]

This command decrements a selected property to be adjusted from the keyboard or front panel.

Command Format: [-], [-k]

[-] = Decrement level by one step

[-k] = Decrement level by 'k' steps

Example:

Adjust Input 1 volume level for the card in slot 5. The current input level is 10, but it is not the optimal value. After sending the following commands, an optimum level of 5 is obtained:

1. [SEL01C5]
   The current input level is 10.

2. [-] [-] [-] [-] [-] or [**-** 5]
   The level is now 5.

20. **[VOL]**

This command sets the absolute volume level for a given input.

Command Format: [VOLmmAvCnUi]

mm = Input (2 digit # from 01 to 64)

Av = Volume Level (# from 01 to 32)

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

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

Example:

Set the volume level for Input 20, of the engine card in slot 5, to a level of 16 using the command [VOL20A16C5].

21. **[SDI]**

This command is used to detect if there is a signal present on one input or all inputs.

Command Format, One Input: [SDImmCnUi]
Command Format, All Inputs: [SDICnUi]

mm = Input (2 digit # from 01 to 64)

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

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

Feedback Format: [IxxSyCn]

xx   = Input Number (2 digits, 01-99)

y   = Signal Present (1=signal, 0=no signal)

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

Example 1:

Check for a signal on Input 1 of the engine in slot 5 by sending the command [SDI01C5]. If there is a signal present on Input 1, the system will return the following feedback:

[I01S1C05]

Example 2:

Check for a signal on all inputs of the engine in slot 5 by sending the command [SDIC5]. In this case, there is a signal on Input 1, but the rest have no signals. The system will return the following feedback:

[I01S1C05] [I02S0C05] [I03S0C05] [I04S0C05]
[I05S0C05] [I06S0C05] [I07S0C05] [I08S0C05]
… [I63S0C05] [I64S0C05]

22. **[SDO]**

This command is used to detect if there is a signal present on one output or all outputs. The system will return feedback along the following:

Command Format, One Output: [SDOmmCnUi]
Command Format, All Outputs: [SDOCnUi]

mm = Output (2 digit # from 01 to 64)

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

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

Feedback Format: [OxxSyCn]

xx   = Input Number (2 digits, 01-99)

y   = Signal Present (1=signal, 0=no signal)

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

Example 1:

Check for a signal on Output 1 of the engine in slot 5 by sending the command [SDO01C5]. If a signal present on Output 1, the following feedback will be returned:

[O01S1C05]

Example 2:

Check for a signal on all outputs of the engine in slot 5 by sending the command [SDOC5]. In this case, there is a signal present on Output 1, but the rest have no signals. The system will return the following feedback:

[O01S1C05] [O02S0C05] [O03S0C05] [O04S0C05] [O05S0C05] [O06S0C05] [O07S0C05] [O08S0C05]

… [O63S0C05] [O64S0C05]

23. **[MODE]**

This command sets the matrix switch mode to Blocking or Non-Blocking. See the following examples for command functionality.

Command Format: [MODEmCnUi]

m   = 1 = ON, 0 = OFF

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

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

Example: NON-BLOCKING

Send the command [MODE0C5] to turn off matrix switch blocking for the engine in slot 5. Next, send the command [I1O*C5] to connect input 1 to all outputs. In non-blocking mode, the inputs will be switched and the outputs will be enabled.

Example: BLOCKING ON

Send the command [I1O*C5] to connect input 1 to all outputs. With blocking on, input 1 will be connected to all outputs, but only output 1 will be enabled. The remaining outputs will need to be enabled using the [ON] command.

Connecting a single output will result in the output being switched and enabled. For example, with blocking on, sending the command [I22O22C5] will result in Input 22 being connected to Output 22 and Output 22 will be enabled.

24. **[HELP]**

This command displays information available for the MultiTasker interface commands.

Command Format: [HELPCnUi]

Cn = Card ID (n = slot # 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 **MT107-103** in slot 5, send the command [HELPC5]. The commands along with a brief description will be displayed.

25. **[…S] – Save**

This command will save the configuration command being sent in memory. Send the command [I1O8C5S] to the engine. After reset or power up, Input 1 will be connected to Output 8 of the engine card slot 5.

26. **[?]**

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

Command Format: [?Ui]

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

Example:

A MultiTasker with Unit ID 1 has a front panel with part number MT101-101 and contains an MT103-122, MT103-123 and **MT107-103**. Send the command [?U1] and receive the following feedback:

[(MT101-101U1)(MT103-122C01) (MT103-123C02)(MT107-103C10)]

MT101-101U1 = Panel Number and Unit ID

MT103-122C1 = An MT103-122 is in slot 1

MT103-123C2 = An MT103-123 is in slot 2

MT107-103C3 = An MT107-103 is in slot 10

27. **[?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)

Example:

The **MT107-103** in slot 5 has Input 1 connected to all outputs. Outputs 1-4 are on and 5-64 are off. Send the command [?C5] to receive the feedback status.

The feedback is enclosed in brackets, "[ ]", and each data field is enclosed within parentheses, "( )". The first two characters indicated the feedback type and the last three characters are the card's ID, (ex: C05).

See the [STA1] command for further details.

FEEDBACK DESCRIPTION

See Figure 1 for details on Matrix Configuration, Connections and Input Volume.

[	= Begin Feedback
(MT107-103C05)	= Model Number
(VR690-0159-006C05)	= Firmware Version
(ME1646400000100C05)	= Configuration
(MA010101…C05)	= Connections 01-16
(MB010101…C05)	= Connections 17-32
(MC010101…C05)	= Connections 33-48
(MD010101…C05)	= Connections 49-64
(ON111100…C05)	= Output Status 01-32
(OL000000…C05)	= Output Status 33-64
(VV0C05)	= VIS (1=On, 0=Off)
(MM0C05)	= Blocking (1=On, 0=Off)
(VA323232…32C05)	= Input Volume 01-16
(VB323232…32C05)	= Input Volume 17-32
(VC323232…32C05)	= Input Volume 33-48
(VD323232…32C05)	= Input Volume 49-64
]	= End Feedback

NOTE: The VIS information applies to video cards only.

28. **[STA1]**

This command enables automatic feedback from the card and front panel. The command affects any card with auto-feedback capability, not just the **MT107-103**. The default at power on or reset is STA0, OFF. The feedback is initiated by a change in the card's status or settings. This type of feedback is an unsolicited response and the feedback will be enclosed in parentheses, "( )".

Command Format: [STA1]

Feedback Prefix Definitions:

MT = Model Number
VR = Firmware Version
ME = Input Selected
MA = Output Connections 01-16
MB = Output Connections 17-32
MC = Output Connections 33-48
MD = Output Connections 49-64
ON = Output Status 01-32
OL = Output Status 33-64
VV = VIS On/OFF
MM = Blocking ON/OFF
VA = Input Volume 01-16
VB = Input Volume 17-32
VC = Input Volume 33-48
VD = Input Volume 49-64

NOTE: The VIS information applies to video cards only.

Example 1:

Command = [ON1C5]

Feedback = (ON11110000…C05)

    ON = Output Status

    11110000 = Output ON/OFF

        Outputs 1-4 are on, 5-8 are off and 9-32 are not shown.

    C05 = Card slot number

Example 2:

Command = [MODE=0C5]

Feedback = (MM0C05)

    MM = Blocking Mode

    0 = Non-Blocking

    C05 = Card slot number

29. **[STA0]**

This command disables automatic feedback from the card and front panel. The command affects any card with auto-feedback capability, not just the **MT107-103** The default at power on or reset is STA0, OFF.

Command Format: [STA0]

30. **[…F] – FEEDBACK**

After processing a command, an OK or [ERR001] will be returned as feedback if "F" is included at the end of a command string.

31. **[FBD]**

This command turns the 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 [HELPC5] is sent to the card in slot 5. Some of the HELP file is displayed on the screen, but most is missing. Send the command [FBD1C5] to slow down the rate at which the card sends feedback to the system.

SAMPLE FEEDBACK

[(MT107-104C05)(VR690-0159-004C05)
(ME1646400000100C05)
(MA0101010101010101010101010101010101C05)
(MB0101010101010101010101010101010101C05)
(MC0101010101010101010101010101010101C05)
(MD0101010101010101010101010101010101C05)
(ON1111000000000000000000000000000000C05)
(OL0000000000000000000000000000000000C05)
(VV0C05)(MM0C05)
(VA3232323232323232323232323232323232C05)
(VB3232323232323232323232323232323232C05)
(VC3232323232323232323232323232323232C05)
(VD3232323232323232323232323232323232C05)]

MATRIX CONFIGURATION

- Matrix Number
- Inputs
- Outputs
- Input Offset
- Output Offset
- Channel Width
- Channel Spacing

+ME1 646400000100 C05

MATRIX CONNECTIONS

- Output 1 to Input 1
- Output 2 to Input 1
- Output 3 to Input 1
- Output 4 to Input 1
- ...
- Output 16 to Input 1

MA 01010101...01 C05

- Output 17 to Input 1
- Output 18 to Input 1
- Output 19 to Input 1
- Output 20 to Input 1
- ...
- Output 32 to Input 1

MB 01010101...01 C05

- Output 33 to Input 1
- Output 34 to Input 1
- Output 35 to Input 1
- Output 36 to Input 1
- ...
- Output 48 to Input 1

MC 01010101...01 C05

- Output 49 to Input 1
- Output 50 to Input 1
- Output 51 to Input 1
- Output 52 to Input 1
- ...
- Output 64 to Input 1

MD 01010101...01 C05

INPUT VOLUME SETTINGS

- Input 1 Volume
- Input 2 Volume
- Input 3 Volume
- Input 4 Volume
- ...
- Input 16 Volume

VA 32323232...32 C05

- Input 17 Volume
- Input 18 Volume
- Input 19 Volume
- Input 20 Volume
- ...
- Input 32 Volume

VB 32323232...32 C05

- Input 33 Volume
- Input 34 Volume
- Input 35 Volume
- Input 36 Volume
- ...
- Input 48 Volume

VC 32323232...32 C05

- Input 49 Volume
- Input 50 Volume
- Input 51 Volume
- Input 52 Volume
- ...
- Input 64 Volume

VD 32323232...32 C05

OUTPUT STATUS

- Output 1 ON
- Output 2 ON
- Output 3 ON
- Output 4 ON
- ...
- Output 32 OFF

ON 111100000 ... 0C05

- Output 33 OFF
- Output 34 OFF
- Output 35 OFF
- Output 36 OFF
- ...
- Output 64 OFF

OL 000000000 ...0 C05

Figure 1

MULTITASKER™

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.

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 Card ID of all the cards in a system to their slot number plus the offset value.

Command Format: [SID+n]

n = Offset amount (n = # from 0 to 99) The maximum ID is 99. Subtract the highest slot number from 99 for the maximum offset. For example, in an 8 slot enclosure, the maximum is 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 and send the command [SID+20] to set the ID of all the 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. **[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$_1$Cn$_2$…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.

38. **[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$_1$Cn$_2$…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]

39. **[RMG]**

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

<u>REMOVE A GROUP</u>

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=0]

<u>REMOVE ALL GROUPS</u>

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

40. **[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.

41. **[CLRG]**

This command clears the members for a single group or for all groups. The clear command restores the cards to default settings and is the equivalent to sending the [CLR] command to each individual card.

NOTE: Since this command is sending the [CLR] command to its group members, each card will display its own reset message, if any.

Command Format: [CLRGkUi]

Gk = Group ID (k = # from 1-8, or * for all)

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

Example:

1) To clear group 1 of Unit ID 0, send the [CLRG1] command. This command clears the members for the specified group only.

2) To clear all groups of Unit ID 1, send the [CLRG*U1] command.

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=0]

7.3 SUMMARY OF COMMANDS

Card Commands

1) [C]   Receives status of the card
2) [CLR]   Reset card to default values
3) [TEST]   Test internal memory IC's
4) [VER]   Receives software version
5) [MAT]   Matrix Configuration
6) [MjCn]   Matrix Configuration
7) [ONmm]   Turns on one output
8) [ON]   Turns on all outputs
9) [OFFmm]   Turns off one output
10) [OFF]   Turns off all outputs
11) [ImmO]   Connect one input to one output
12) [ImmO*]   Connect one input to all outputs
13) [IN]   Show outputs connected to input
14) [OUT]   Show input connected to output
15) […P]   Sets the path, preload for [SW]
16) [SW]   Switch preloaded output buffer
17) [SEL]   Select input volume to adjust
18) [+]   Increment select property
19) [-]   Decrement select property

20) [VOL]   Set absolute volume level
21) [SDI]   Input signal detect
22) [SDO]   Output signal detect
23) [MODE]   Turn blocking on/off
24) [HELP]   Display help file
25) […S]   Save command setting
26) [?]   Show system cards
27) [?C]   Show card information
28) [STA1]   Enable auto feedback
29) [STA0]   Disable auto feedback
30) […F]   Show command feedback
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+n]   Set Card ID offset
36) [RSN]   Read Card slot number

Group Commands

37) [WR]   Groups multiple cards
38) [RMC]   Remove members from group
39) [RMG]   Delete group
40) [RD]   Displays group members
41) [CLRG] Clears 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 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 cross-reference of menu mode sections versus programming commands.

MENU	COMMAND
Matrix Setup	[MATj;mm;tt;xx;yy;kk;ll;C*n*]
Select Matrix	[MjC*n*]
Out On/Off	[ONC*n*], [OFFC*n*]
Connect	[ImmOxxCn], [ImmO*C*n*], [SW]
Signal Detect	[SDImmC*n*], [SDOmmC*n*]
Version	[VER]
Status	[C*n*]
HELP	[HELP]
Save Settings	[C*n*S], [..S]

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 MTSetup™ or other 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 MTSetup™, click the cursor in the Terminal Window and press the ENTER key.

5. The system will interrogate the enclosure and return a list of cards installed and their slot locations.

    Example: 08: **MT107-103**

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

5. Find the two digit number representing the card whose setup requires changing. It will be the first two characters in the line.

6. Press the number or letter 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 the ones relating to the desired menu. Pressing ENTER or RETURN after "08" will force the system back to the original prompt.

7. After selecting the **MT107-103** 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 MENUS

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 MT107-103 MENUS

Following are the menus available to the **MT107-103**. The first menu is the Main Menu only. The second listing is an expansion of all the menu items available.

The expanded menu contains values that indicate the current setting or value of a parameter. The value is usually in parentheses, or otherwise indicated at the top of a sub menu. In some areas, additional comments are provided for clarification and are not part of the menu feedback.

System prompts requiring specific values are not shown. See the examples following the menus for details.

MT107-103 MAIN MENU

1: MATRIX SETUP
2: SELECT MATRIX (1)
3: OUT ON/OFF
4: CONNECT (IN?? OUT??)
5: SIGNAL DETECT
6: VERSION
7: STATUS
8: HELP
9: SAVE CURRENT SETTINGS
ESC: GO BACK

KEY=

MT107-103 EXPANDED MENUS

1: MATRIX SETUP

  1: SET MATRIX NUMBER (1)

    SET MATRIX NUMBER (1-9)

    ESC: GO BACK

    KEY=

2: SET NUMBER OF INPUTS (04)

  SET NUMBER OF INPUTS (01-64)

  ESC: GO BACK

  KEY=

3: SET NUMBER OF OUTPUTS (04)

  SET NUMBER OF OUTPUTS (01-64)

  ESC: GO BACK

  KEY=

4: SET INPUT OFFSET (00)

  SET INPUT OFFSET (00-63)

  ESC: GO BACK

  KEY=

5: SET OUTPUT OFFSET (00)

  SET OUTPUT OFFSET (00-63)

  ESC: GO BACK

  KEY=

6: SET CHANNEL WIDTH (01)

  SET CHANNEL WIDTH (01-32)

  ESC: GO BACK

  KEY=

7: SET CHANNEL SPACING (00)

  SET CHANNEL SPACING (00-31)

  ESC: GO BACK

  KEY=

8: SAVE CONFIGURATION

  ARE YOU SURE?

  1: YES

  2: NO

  ESC: GO BACK

  KEY=

2: SELECT MATRIX (1)

  1: SELECT MATRIX 1
  2: SELECT MATRIX 2
  3: SELECT MATRIX 3
  4: SELECT MATRIX 4
  5: SELECT MATRIX 5
  6: SELECT MATRIX 6
  7: SELECT MATRIX 7
  8: SELECT MATRIX 8
  9: SELECT MATRIX 9

  ESC: GO BACK

  KEY=

3: OUT ON/OFF
   1: ALL OUTPUTS ON
   2: ALL OUTPUTS OFF
   ESC: GO BACK
   KEY=
4: CONNECT (IN?? OUT??)
   1: SELECT INPUT ??
      INPUT NUMBER (01-64)
      ESC: GO BACK
      KEY=
   2: SELECT OUTPUT ??
      OUTPUT NUMBER (01-64)
      ESC: GO BACK
      KEY=
   3: SWITCH
   4: SWITCH INPUT TO ALL OUTPUTS
   ESC: GO BACK
   KEY=

5: SIGNAL DETECT
   1: SELECT INPUT (IN??)
      INPUT NUMBER (01-64)
      ESC: GO BACK
      KEY=
   2: SELECT OUTPUT (OUT??)
      OUTPUT NUMBER (01-64)
      ESC: GO BACK
      KEY=
   3: CHECK SIGNAL
   ESC: GO BACK
   KEY=

6: VERSION
   Displays the model number and firmware revision and then redisplays the Main Menu.
7: STATUS
   Displays the card status and then redisplays the Main Menu.
8: HELP
   Displays the card HELP file and then redisplays the Main Menu.
9: SAVE CURRENT SETTINGS
   Saves the card's current settings and then redisplays the Main Menu.

7.4.5 MENU MODE EXAMPLES

All MENU MODE examples assume an **MT107-103** is installed in slot 5. Start by clicking the mouse in the Terminal window. Press ENTER and a list of available cards will be displayed.

1. Define Matrix 1

Starting at the root menu, or list of cards, follow the keystrokes below to define and select Matrix 1 as a 64x64 matrix.

Enter	List available cards
05	Select **MT107-103** in slot 5
1	Select MATRIX SETUP
1	Select SET MATRIX NUMBER
1	Set matrix number to 1
2	Select SET NUMBER OF INPUTS
64	Set 64 inputs
3	Select SET NUMBER OF OUTPUTS
64	Set 64 outputs
4	Select SET INPUT OFFSET
00	Set no input offset
5	Select SET OUTPUT OFFSET
00	Set no output offset
6	Select SET CHANNEL WIDTH
01	Set channel width to 1
7	Select SET CHANNEL SPACING
00	Set channel spacing to 0
8	Select SAVE CONFIGURATION
1	Select YES
ESC	Return to previous menu

2. Connect Input 1 to Output 1

Starting from the **MT107-103** Main Menu, connect Input 1 to Output 1. Follow the keystrokes below.

4	Select the CONNECT menu
1	Select SELECT INPUT
01	Set input 01
2	Select SELECT OUTPUT
01	Set output 01
3	Select SWITCH to make connection

3. Verify signal on Input 1 and Output 64

Starting from the **MT107-103** Main Menu, verify Input 1 and Output 64 have valid signals. Follow the keystrokes below.

5	Select SIGNAL DETECT
1	Select SELECT INPUT
01	Enter input number 1

The card will check for a signal and update the value displayed in parentheses.

2	Select SELECT OUTPUT
64	Enter output number 64

The card will check for a signal and update the value displayed in parentheses.

3	Select CHECK SIGNAL

Each time 3 is pressed, the card will check for the signals and redisplay the status.

ESC	Return to previous menu

4. Turn off all outputs.

Starting from the **MT107-103** Main Menu, set all outputs off. Follow the keystrokes below.

3	Select OUT ON/OFF menu
2	Select ALL OUTPUTS OFF

5. Display Card Status

Starting from the Main Menu, follow the keystrokes below.

7	Select STATUS from the menu.

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 **MT107-103.** However, we would like to offer suggestions for the following:

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 on, 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 on, 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 LED IS BLINKING RED

Cause 1:   The CPU on the card is not working properly.

Solution 1: Look at the card and verify that there is no damage. If there is no damage, see Solution 2.

Solution 2: Verify that all ICs are seated in their sockets. If the LED is still blinking red, see Cause 2.

Cause 2:   The card and its serial device are not communicating.

Solution 1: Turn the system off and then on again. If there is still an error, see Cause 3.

Cause 3:   RS485 communication error

Solution 1: Make sure that the card is pushed all the way into the slot. If there is still an error, see Solution 2.

Solution 2: Turn the system off and then on again. If there is still an error, see Solution 3.

Solution 3: Call ALTINEX at (714) 990-2300.

8.3 NO SOUND

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

Solution: Check the source and make sure that there is a signal present 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 not selected.**

Solution: Select the card output. See RS-232 accessible commands in Section 7. If no sound is present, see Cause 3.

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

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

Cause 4: **The receiving device has a problem.**

Solution: Make sure the receiving device has power and is turned on. If there is still no sound, please 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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