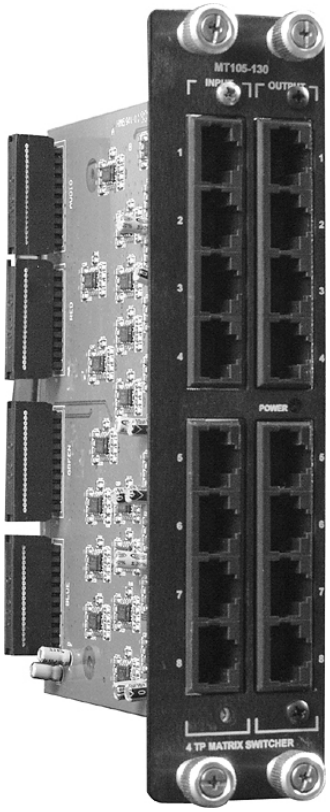

MT105-130 is shown above.

MANUAL PART NUMBER: 400-0368-003

MT105-130/131/132

8X8 CAT5 - 4TP/3TP/2TP

MATRIX SWITCHER CARDS

USER'S GUIDE

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PRECAUTIONS / SAFETY WARNINGS 1

Please read this manual carefully before using your **MT105-130**. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **MT105-130** and to prevent fire and shock hazards. 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 water or moisture. Do not place the **MT105-130** 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 **MT105-130** carefully. Dropping or jarring can damage the card.
- Do not pull any cables that are attached to the **MT105-130.**
- 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 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.

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ABOUT YOUR MT105-130 2

MT105-130
8x8 TWISTED PAIR SWITCHER
RGBHV/YPbPr + STEREO AUDIO

The **MT105-130** is a Twisted Pair video+audio switcher designed to switch ALTINEX Standard Twisted Pair (TP) signals. This card has eight fixed inputs and eight fixed outputs using RJ-45 connectors.

Signal detection circuitry is built-in for both inputs and outputs. This feature enables easy remote diagnostics throughout RS-232 commands from the source all the way to the output connectors. Additional diagnostic tools include a self-test of internal memory IC's.

The matrix switcher may be configured to any 8x8 input and output combination through easy-to-use MultiTasker commands. Several input-to-output combinations may be preprogrammed and then switched simultaneously with a single command.

Three different 8x8 Matrix Switcher cards are available:

MT105-130	4TP	RGBHV + Stereo Audio	or
		YPbPr + Stereo Audio	or
		S-Video + Stereo Audio	or
		Composite + Stereo Audio	
MT105-131	3TP	S-Video + Stereo Audio	or
		Composite + Stereo Audio	
MT105-132	2TP	Composite + Stereo Audio	

The latest generation of Twisted Pair devices uses an innovative, patented technology* developed by ALTINEX. The new signal processing technology allows transmitting and receiving fully equalized computer video signals, stereo, and audio signals over long distances. The maximum distance at full UXGA resolution is 400 ft (122 m) between devices and may reach up to 750 ft (230 m) at VGA resolution.

* US Patent 7,065,190

TECHNICAL SPECIFICATIONS 3

Specifications are subject to change.
See www.altinex.com for up-to-date information.

FEATURES/ DESCRIPTION	MT105-130/131/132
GENERAL	
Inputs	RJ-45 female (8)
Outputs	RJ-45 female (8)
Compatibility	
MT105-130	VGA through UXGA + Stereo Audio, YPbPr + Stereo Audio, S-Video + Stereo Audio, Composite Video + Stereo Audio
MT105-131	S-Video + Stereo Audio, Composite Video + Stereo Audio
MT105-132	Composite Video + Stereo Audio

Table 1. **MT105-130/131/132** General

MECHANICAL	MT105-130/131/132
Enclosure Slots Required	2
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. **MT105-130/131/132** Mechanical

ELECTRICAL		MT105-130/131/132
Input Signals		
CAT-5/6 Twisted Pair Input		Video + Audio Signals, ALTINEX Standard
Output Signals		
CAT-5/6 Twisted Pair Output		Video + Audio Signals, ALTINEX Standard
Power (from enclosure)		
MT105-130	+6V	0.925 A (5.6 W)
	-6V	0.325 A (1.9 W)
MT105-131	+6V	0.700 A (4.2 W)
	-6V	0.250 A (1.5 W)
MT105-132	+6V	0.500 A (3.0 W)
	-6V	0.200 A (1.2 W)

Table 3. **MT105-130/131/132** Electrical

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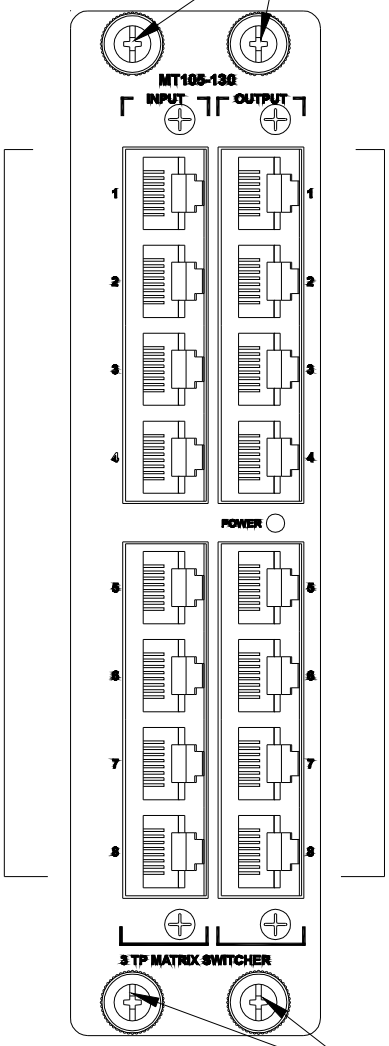
PRODUCT DESCRIPTION 4



INPUTS

MT105-130 : 8x 4TP

MT105-131 : 8x 3TP

MT105-132 : 8x 2TP

OUTPUTS

MT105-130 : 8x 4TP

MT105-131 : 8x 3TP

MT105-132 : 8x 2TP

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APPLICATION DIAGRAMS 5

DIAGRAM 1: MT105-130 TYPICAL SETUP

MT105-130
RGBHV/YPbPr + STEREO AUDIO

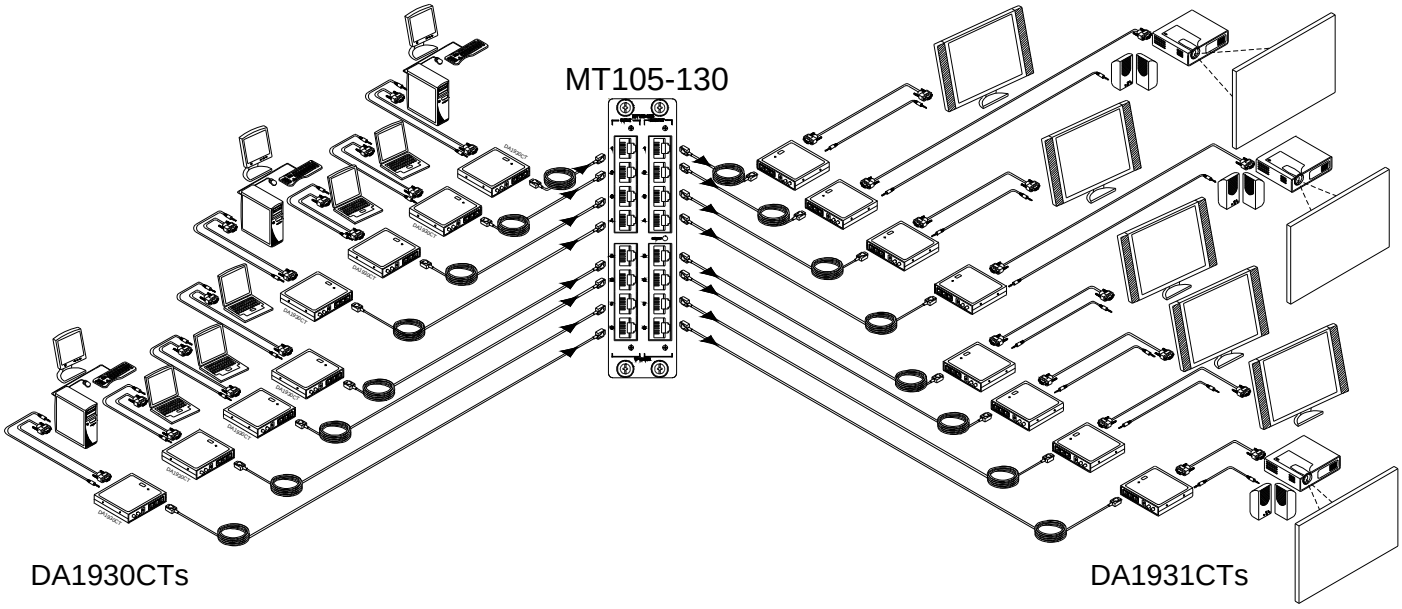

DIAGRAM 2: MT105-131 TYPICAL SETUP

MT105-131
S-VIDEO + STEREO AUDIO

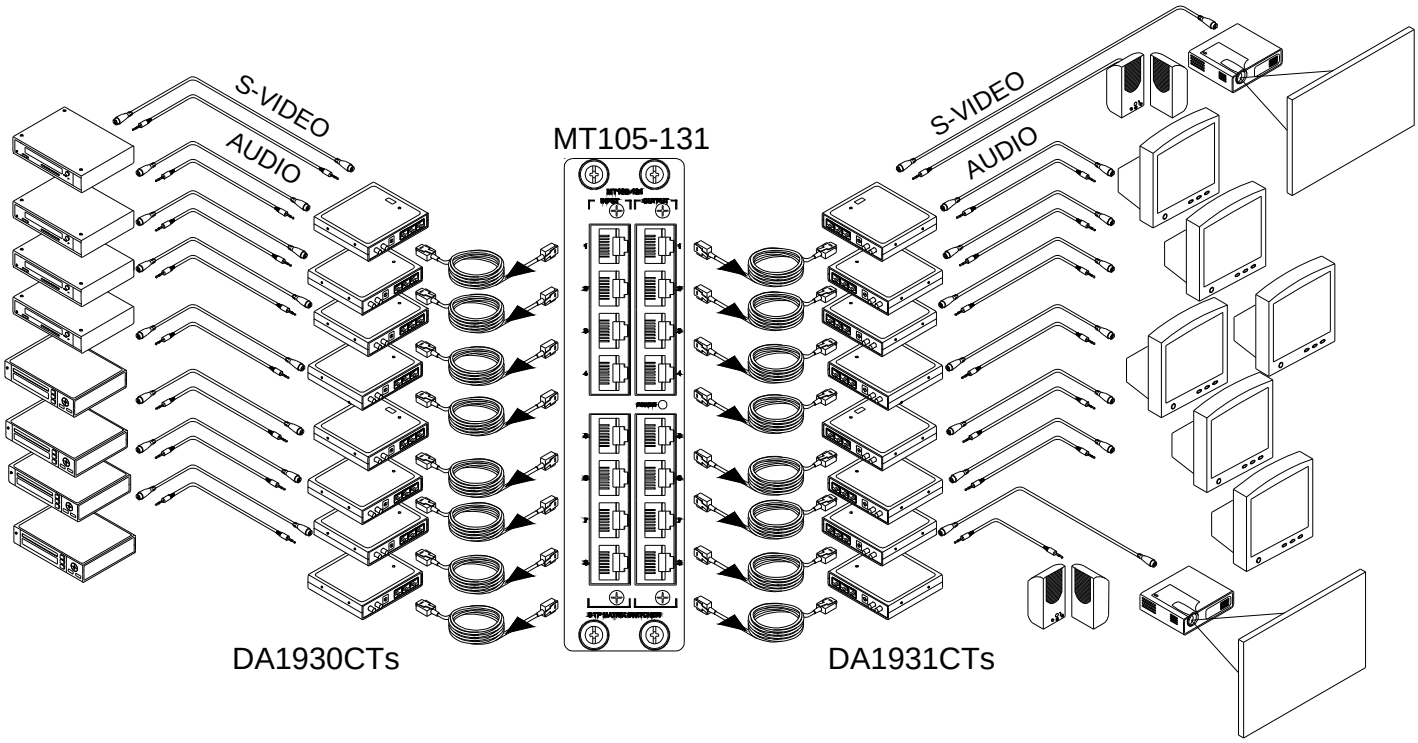

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DIAGRAM 3: MT105-132 TYPICAL SETUP

MT105-132
C-VIDEO + STEREO AUDIO

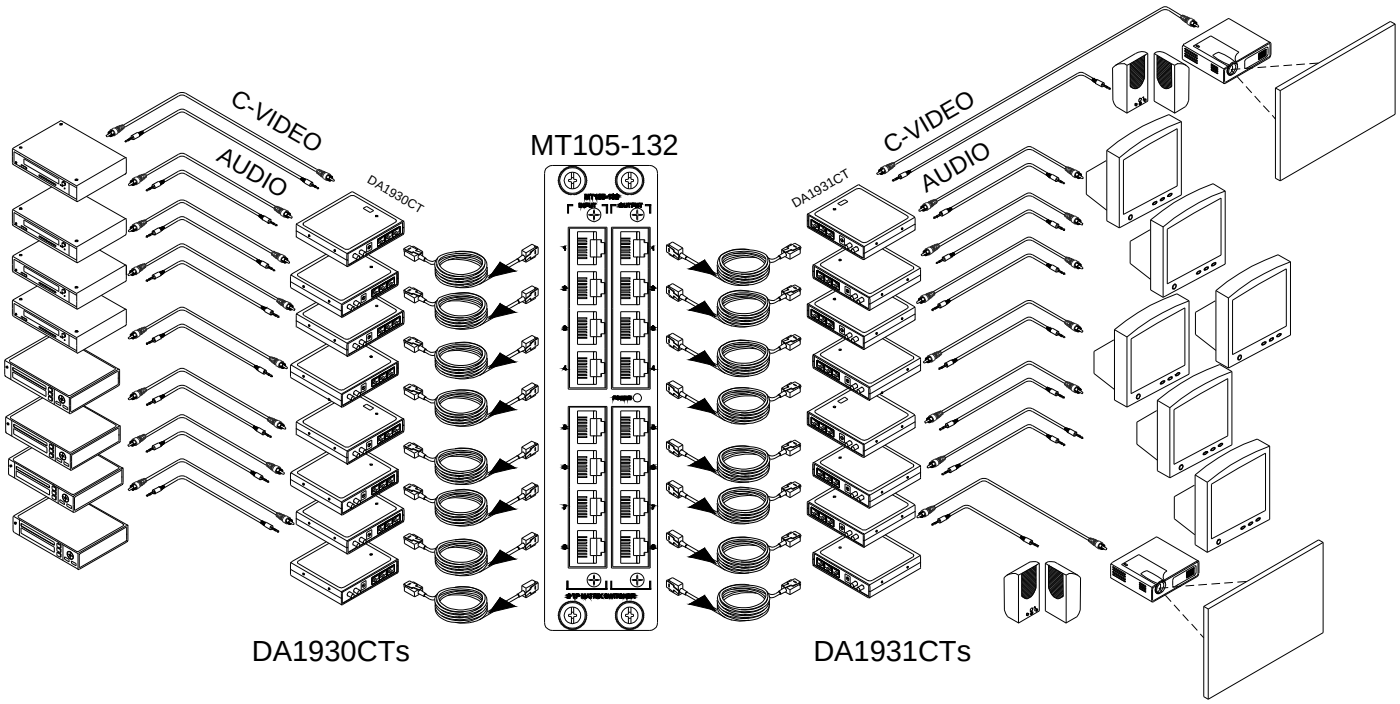
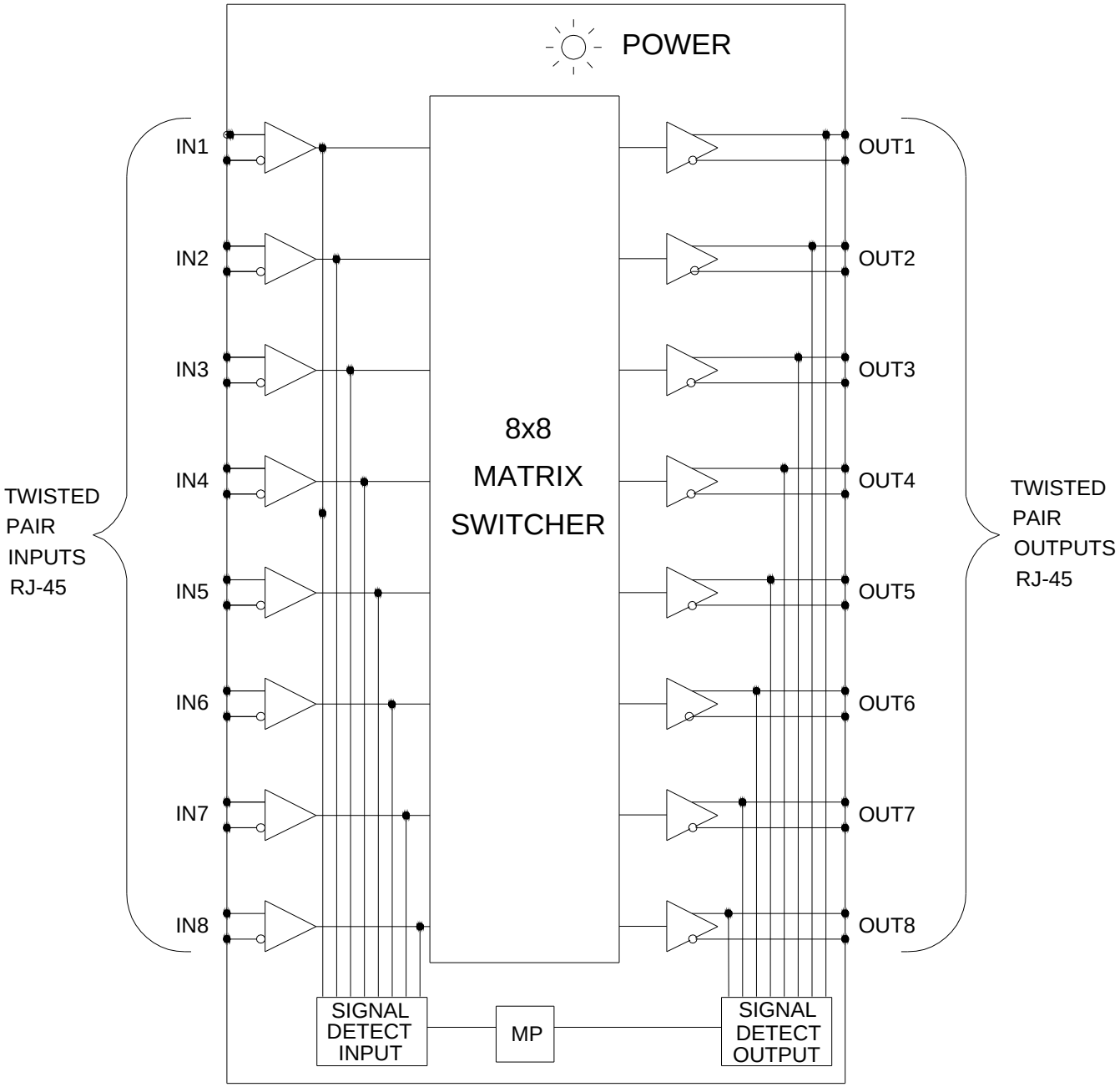


DIAGRAM 4: INTERNAL VIEW



INSTALLING YOUR MT105-130/131/132 6

Step 1. Turn off power to the MultiTasker system and disconnect from AC power.

Step 2. Remove an unused slot cover (MT200-101) and make note of the slot number.

NOTE: The slot number will be used for addressing the card using RS-232 control.

Step 3. Slide the **MT105-130/131/132** into an available slot in the MultiTasker enclosure in order to connect it to the bus. Make sure that the card fits into place then secure the card by tightening the top and bottom retainer screws**.**

Step 4. Restore power to the MultiTasker system.

NOTE: The power LED should be on and red.

Step 5. Connect CAT-5 cables from the Twisted Pair transmitters to the input connectors of the **MT105-130/131/132**.

Step 6. Connect the output connectors of the **MT105-130/131/132** to the inputs of the Twisted Pair receivers.

Step 7. The new MultiTasker card is ready for operation. See the RS-232 Control commands in the next section to make the proper input to output connections.

OPERATION 7

7.1 RS-232 CONTROL

The **MT105-130/131/132** has many advanced remote-control capabilities accessible through standard RS-232 communication. Control may be accomplished through a computer control system or any other device capable of sending RS-232 communication.

7.1.1 RS-232 INTERFACE

The control commands are in a simple ASCII character format.

1. **Square brackets "[ ]" are part of the command.**
2. **Use uppercase letters for all commands.**
3. **Spaces are not legal characters.**

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 only to perform an action will generate feedback of "[ ]". The open bracket immediately followed by a closed 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 (optional for Unit ID 0)

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 1-4 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.

NOTE: In this manual, cards will be referenced by their ID (C1, C2...C99). Typically, the ID number will be equivalent to the slot number. Groups will be referenced by their ID (G1-G8).

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]

BASIC COMMANDS

1. **[VER]**

   This command displays the software version and model number for the card.

   Command Format: [VERCn]

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

   Example:

   An **MT105-130** card is in slot 2. Send the command [VERC2], and the MultiTasker will return feedback similar to the following:

   [MT105-130 690-0191-003 C02]

   MT105-130 = Card model number

   690-0191-003 = Firmware version

   C02 = Card ID/slot number

2. **[C]**

   This command displays the status of the card.

   Command Format: [Cn]

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

   Example:

   An **MT105-130** card is in slot 2 and Input 1 is connected to all the outputs. Outputs 1-3 are on. Display the status by sending the command [C2] and receiving feedback similar to the following:

   Blocking Matrix
   In1 Out1 ON
   In1 Out2 ON
   In1 Out3 ON
   In1 Out4 OFF
   In1 Out5 OFF
   In1 Out6 OFF
   In1 Out7 OFF
   In1 Out8 OFF

   NOTE: If there is no card in slot 2, sending the [C2] command will not return any feedback.

3. **[CnS]**

   This command saves the card's settings. These settings will be restored when the system is reset or powered off and then back on.

   Command Format: [CnS]

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

   S = Save settings

   Example:

   Save the settings for C2 by sending the command [C2S]. The card will save the current settings and display the status with the feedback format similar to the following.

   Non-Blocking Matrix
   In1 Out1 ON
   In1 Out2 ON
   In1 Out3 ON
   In1 Out4 ON
   In1 Out5 OFF
   In1 Out6 OFF
   In1 Out7 OFF
   In1 Out8 OFF

4. **[CLR]**

   This command is used to clear the card and return it to its factory settings.

   Command Format: [CLRCn]

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

   Example:

   Send the command [CLRC2] to restore the card in slot 2 to its factory defaults. The following message will be displayed at the start.

   PLEASE WAIT
   CARD IS PERFORMING FACTORY RESET

   When the reset is complete, the following message will be displayed.

   FACTORY RESET COMPLETED

5. **[HELP]**

   This command displays information available for the MultiTasker interface commands.

   Command Format: [HELPCn]

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

   Example:

   In order to display the RS-232 commands available for the **MT105-130** card in slot 2, send the command [HELPC2]. The commands along with a brief description will be displayed in the Terminal Window.

6. **[TEST]**

   This command performs a series of tests on the internal memory. Upon completion, the system will display the results.

   Command Format: [TESTCn]

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

   Example:

   There is an **MT105-130** in slot 2. In order to test the internal memory, send the command [TESTC2]. If all components are functioning normally, the feedback will be similar to the follow:

   MEMORY IC TEST RESULTS:
   MEMORY IC PASS

   NOTE: If any tests failed, the failure results would be displayed.

FEEDBACK COMMANDS

The next several commands are a function of both the card and the front panel and 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.

Send the command [VER] to the system and the feedback will include 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.

7. **[?]**

   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 MT105-130. Send the command [?U1] and receive the following feedback:

   [(MT101-101U1)(MT105-130C02)
   (MT103-122C03)(MT103-123C04)]

   MT101-101U1 = Panel number/unit ID
   MT105-130C02 = MT105-130 is in slot 2
   MT103-122C03 = MT103-122 is in slot 3
   MT103-123C04 = MT103-123 is in slot 4

8. **[?C]**

   This command will return general information about the card and its status.

   Command Format: [?Cn]

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

   Example:

   The **MT105-130** in slot 2 has Input 1 connected to Outputs 1-4, Input 2 to Outputs 5-8, and all outputs are ON. Send the command [?C2] to receive feedback status similar to the following.

   [(MT105-130C02)(VR690-0191-003C02)
   (MA11112222C02)(ON11111111C02)]

   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.

   MT105-130 = Card model number
   VR690-0170-003 = Firmware version
   ON1111111 = Output ON/OFF status
   MA11111111 = Matrix connections

   The ON/OFF status line is read from left to right as outputs 1-8. A "1" indicates the output is ON and a "0" indicates the output is OFF.

   The I/O connections are read left to right representing Outputs 1-8 and the input to which each is connected. The first 2 digits are the input number to which Output 1 is connected. The next 2 digits are for Output 2, and so on.

9. **[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: [FBDm]

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

   Example:

   The command [HELPC2] is sent to the card in slot 2. Some of the HELP file is displayed on the screen, but most is missing. Send the command [FBD1] to slow down the rate at which the card sends feedback to the system.

10. **[STA1]**

    This command enables automatic feedback from the front panel. The command affects any card with auto-feedback capability, not just the **MT105-130**. The default at power on or reset is STA0, off. For more details, see the [?Cn] command definition.

    Command Format: [STA1]

    Feedback Prefix Definitions:
    MT Card model number
    VR Firmware revision
    ON Output On/OFF status
    MA Matrix connections

    Example:

    Command = [OFF1C2]
    Feedback = (ON01111111C02)
    ON = Output status
    011...1 = Outputs 1-8 (0=OFF, 1=ON)
    C02 = Card ID/slot number

11. **[STA0]**

This command disables automatic feedback from the card and front panel. The command affects any card with auto-feedback capability, not just the **MT105-130** card**.** The default at power on or reset is STA0, OFF.

Command Format: [STA0]

CARD CONTROL COMMANDS

12. **[IO]**

This command will connect a single input with a single output and enable that output.

Command Format: [IxOyCn]

x = Input (x = # from 1 to 8)

y = Output (y = # from 1 to 8)

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

Example:

An **MT105-130** is in slot 2. Connect Input 1 to Output 1 by sending the command [I1O1C2]. After the command is sent, Input 1 will be connected to Output 1 and Output 1 will be turned on.

13. **[IO*]**

This command will connect a single input with all the outputs and enable the outputs if the card is in Non-Blocking mode.

If the card is in Blocking mode, only the first output will be turned on automatically. If there are other outputs on, they will be turned off. See the [MODE] command for more details.

Command Format: [IxO*Cn]

x = Input (x = # from 1 to 8)

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

Example:

An **MT105-130** is in slot 2 and Matrix Blocking mode is set. Connect Input 1 to all outputs by sending the command [I1O*C2]. After the command is sent, Input 1 will be connected to all outputs, but only Output 1 will be turned on. If Outputs 2-8 were on prior to the command, they will be turned off.

14. **[MODE]**

This command sets the Matrix Switch Mode to Blocking or Non-Blocking.

Command Format: [MODEmCn]

m = 1 = ON, 0 = OFF

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

NON-BLOCKING

Example:

Send the command [MODE0C2] to turn off Blocking Mode for the card in slot 2. Next, send the command [I1O*C2] to connect Input 1 to all outputs. In Non-Blocking mode, the inputs will be switched and the output enable settings will not be changed. If the outputs are on, they remain on.

BLOCKING

Example:

Send the command [I1O*C2] to connect Input 1 to all outputs. If Blocking is 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.

15. **[ON]**

This command enables one output or all outputs for a single card, or a group of cards.

SINGLE CARD OPERATION

Command Format: [ONmCn] - one output

Command Format: [ONCn] - all outputs

m = Output # (m = # from 1 to 8)

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

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Example:

There is an **MT105-130** card in slot 2. All of the outputs on the card are off. Turn on Output 1 only by sending [ON1C2]. Next, turn on all the outputs at the same time by sending [ONC2].

GROUP OPERATION

Command Format: [ONmGk] - one output

Command Format: [ONGk] - all outputs

This command enables output "m" for each card in group "k".

m = Output # (m = # from 1-8)

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

Example:

Send the command [ON1G1] to turn on Output 1 for each card in Group 1. See the GROUP commands for a detailed explanation.

PATH OPERATION

Command Format: [ONmCnP]

This command sets 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 outputs on multiple cards or the same card may be preloaded.

m = Output # (m = # from 1 to 8)

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

P = Path

Example:

There are 2 **MT105-130** cards in slots 6 and 8. Enable Output 1 of C6 and Output 3 of C8 simultaneously. In order to do this, send the following commands:

[ON1C6P] , [ON3C8P] , [SW]

16. **[OFF]**

This command disables one output or all outputs for a single card, or a group of cards.

SINGLE CARD OPERATION

Command Format: [OFFmCn] - one output

Command Format: [OFFCn] - all outputs

m = Output # (m = # from 1 to 8)

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

Example:

There is an **MT105-130** card in slot 2. All of the outputs on the card are on. Turn off Output 1 only by sending [OFF1C2]. Next, turn off all the outputs at the same time by sending [OFFC2].

GROUP OPERATION

Command Format: [OFFmGk] - one output

Command Format: [OFFGk] - all outputs

This command disables output "m" for each card in group "k".

m = Output # (m = # from 1-8)

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

Example:

Send the command [OFF1G1] to turn off Output 1 for each card in Group 1. See the GROUP commands for a detailed explanation.

PATH OPERATION

Command Format: [OFFmCnP]

This command sets 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 outputs on multiple cards or the same card may be preloaded.

m = Output # (m = # from 1 to 8)

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

P = Path

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Example:

There are 2 **MT105-130** cards in slots 6 and 8. Disable Output 1 of C6 and Output 3 of C8 simultaneously. In order to do this, send the following commands:

[OFF1C6P] , [OFF3C8P] , [SW]

17. **[…S] – SAVE**

This command saves the configuration command being sent in memory. When sending the command [I1O8C2S], after reset or power-up, Input 1 will be connected to Output 8 on C2.

18. **[…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 outputs on multiple cards or the same card can be preloaded. See the examples for the [ON] and [OFF] commands.

19. **[SW] – SWITCH**

This command immediately connects inputs and outputs previously set with the PATH command. All paths set on this card and all other cards in the enclosure will be switched.

Example:

The following commands set the path for turning on Output 1 of C6 and turning off Output 3 of C8. Nothing happens until the [SW] command is sent. At that time, Output 1 is enabled and Output 3 is disabled.

[ON1C6P]

[OFF3C8P]

[SW]

20. **[SDI]**

The Input Signal Detect command tests for the presence of an input signal on one or all inputs. The system returns feedback indicating the input number and its ON/OFF status.

Command Format: [SDImCn] - one input

Command Format: [SDICn] - all inputs

m = Input # (m = # from 1 to 8)

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

Example 1:

A properly formatted input signal is applied to Input 1 of C2. Verify the input signal is detected by sending the command [SDI1C2] and receiving the following feedback:

In1 Signal ON

Example 2:

Only one input signal is applied to the **MT105-130** in slot 2. Send the command [SDIC2] to check all inputs. The feedback will be as follows:

In1 Signal ON
In2 Signal OFF
In3 Signal OFF
In4 Signal OFF
In5 Signal OFF
In6 Signal OFF
In7 Signal OFF
In8 Signal OFF

21. **[SDO]**

The Output Signal Detect command tests for the presence of an output signal on one or all outputs. The system returns feedback indicating the output number and its ON/OFF status.

Command Format: [SDOmCn] - one output

Command Format: [SDOCn] - all outputs

m = Output (m = # from 1 to 8)

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

Example 1:

The card in slot 2 has Input 1 connected to Output 1, and Output 1 is on. Verify the output signal is detected by sending the command [SDO1C2] and receiving the following feedback:

Out1 Signal ON

Example 2:

Input 1 is connected to all outputs, but only Outputs 1-4 are enabled. Verify the output signals are detected by sending the command [SDOC2] and receiving the following feedback:

Out1 Signal ON
Out2 Signal ON
Out3 Signal ON
Out4 Signal ON
Out5 Signal OFF
Out6 Signal OFF
Out7 Signal OFF
Out8 Signal OFF

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. Once the ID is changed, moving the card to another slot will not change the card ID. If a card in slot 4 is set to ID 1, then moved to slot 10, its ID will remain 1. The RSI command forces each installed card to take its slot number as its ID number, regardless of the slot in which it is installed.

Some cards require more than one slot in the MultiTasker system. As an example, some matrix switcher cards require 4 slots. If 5 of these cards are installed, they would be numbered C4, C8, C12, C16, and C20. Changing the 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.

The ID commands work with all MultiTasker systems. However, front panels that have firmware releases prior to the following will not be able to address card IDs 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.

Send the command [VER] to the system and the feedback will include the following:

690-0122-019 690-0123-005 690-0124-019

Check the last three digits against the numbers above to determine if the card ID commands can address all 99 card IDs.

22. **[RSI]**

This command resets the card IDs in the system. After sending this command, each card ID in the system will match the slot number of the card. If the card is moved to another slot, its ID number will be the new slot number.

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. If the card in slot 1 is then moved to slot 4, the card ID will then be 4.

23. **[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.

24. **[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.

25. **[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 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 default IDs where the card ID is equal to the slot number. The second unit will have the same unit ID, but each card ID will be 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 second enclosure to their slot number plus 20. Reconnect both units to the computer.

The cards in the first unit will be referenced as card IDs 1-20 and the cards in the second unit will be referenced by card IDs 21-40.

26. **[RSN]**

This command displays the slot number of a card with a specified ID number. 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]

GROUP COMMANDS

The next few commands are group commands. The use of groups allows several cards with the same functions to be controlled simultaneously using a single command. Up to 8 groups (G1-G8) may be defined in a MultiTasker system. These commands apply to all cards, not only the **MT105-130.**

27. **[WR]**

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

In MultiTasker systems with audio and video cards, the groups are typically as follows:

Group 1 = Video Cards

Group 2 = Audio Cards

Group 3 = Video and Audio Cards

Command Format: [WRCn$_1$Cn$_2$…Gk]

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

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

Example:

Add C2, C4, and C6 to G5 by sending the command [WRC2C4C6G5]. After executing this command, C2, C4, and C6 will be G5. The system will return the following feedback:

[G5=C2C4C6]

Now when a command is sent to G5, each board in G5 will execute the same command.

28. **[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_1Cn_2…Gk]

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

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

Example:

G5 consists of the C2, C4, and C6. Remove only C4 and C6 from the group by sending the command [RMC4C6G5]. The system will return the following feedback:

[G5=C2]

29. **[RMG]**

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

REMOVE A GROUP

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

Command Format: [RMGk]

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

Example:

G5 consists of the C2, C4, and C6. Remove all cards from the group by sending the command [RMG5]. The system will return the following feedback:

[G5=0]

REMOVE ALL GROUPS

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

Command Format: [RMG*]

Example:

G5 consists of C2, C4, and C6. G2 consists of C1, C2, C3, C4, and C5. Delete all the groups by sending the command [RMG*]. The system will return the following feedback:

G1-G8: EMPTY

30. **[RD]**

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

Command Format: [RDGk]

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

Example:

C2, C4, and C6 make up G5. Read the member data for G5 by sending the command [RDG5]. The system will return feedback as follows:

[G5=C2C4C6]

The feedback shows G5 and then the cards that make up G5. In this case, G5 includes C2, C4, and C6.

7.3 SUMMARY OF COMMANDS

Basic Commands

1) [VER] Display firmware version
2) [C] Display card status
3) [CnS] Save card settings
4) [CLR] Reset card to default settings
5) [HELP] Display available commands
6) [TEST] Test internal memory ICs

Feedback Commands

7) [?] Display system cards
8) [?C] Display card information
9) [FBD] Enable/disable feedback delay
10) [STA1] Enable auto feedback
11) [STA0] Disable auto feedback

Control Commands

12) [IO] Connect input to output
13) [IO*] Connect input to all outputs
14) [MODE] Enable/disable blocking mode
15) [ON] Enable one or more outputs
16) [OFF] Disable one or more outputs
17) […S] Save the command being sent
18) […P] Set the path, preload for [SW]
19) [SW] Switch preloaded output buffer
20) [SDI] Detect input signal
21) [SDO] Detect output signal

ID Commands

22) [RSI] Reset Card IDs to defaults
23) [SIDn] Set all Card IDs
24) [SIDnCi] Set one Card ID
25) [SID+] Set all Card IDs to an offset
26) [RSN] Display card slot number

Group Commands

27) [WR] Add card(s) to a group
28) [RMC] Remove card(s) from group
29) [RMG] Delete group
30) [RD] Display group members

7.4 MENU MODE

Menu Mode commands allow virtually the same functionality as programming commands. Unlike the programming commands in the previous sections, menu commands prompt the user to select from a list of available options. The system then responds based upon selections made by the user.

The menu-driven commands are only available with MultiTasker systems that have the following front panel firmware:

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

Send the command [VER] to the system and the feedback will include the following:

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

Check the last three digits against the numbers above to determine if Menu Mode 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 commands.

MENU	COMMAND
Matrix	[MODE]
I/O Connection	[..P], [IO], [SW]
Output ON/OFF	[ON], [OFF]
Signal Detect	[SDI], [SDO]
Save Configuration	[CnS]
Reset Configuration to Default	[CLR]
Version	[VER]
Status	[C]
Help	[HELP]

7.4.2 USING MENU MODE

TIP: It is best to disable the automatic feedback feature, [STA0]. 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. In the Terminal Window, press ENTER on the keyboard.
3. The system interrogates all cards and returns a list of cards and their ID numbers.

   Example: 08: **MT105-130**

   NOTE: Only cards supporting the menu feature will be displayed.
4. Enter the 2-digit ID and a menu for the card will be displayed. In the example above, enter "08" for the **MT105-130**.

   WARNING: Do NOT enter any characters except those relating to the desired menu. Press ENTER after "08" and the original prompt will be displayed.
5. The system will prompt for selections specific to the selected card.
6. 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 key functions related to the card. Press the key representing the menu item for access and a sub-menu will appear.
2. SUB-MENUS

   Each menu item will display either a sub-menu, or a list of options. Press the key corresponding to the desired choice.

7.4.4 MT105-130/131/132 MENUS

Following are the menus available to the **MT105-130/131/132**. The first menu is the Main Menu only. The second listing is an expanded view of the menu items.

The expanded menu contains values in parentheses that indicate the current setting or value of that parameter. In some areas, additional comments are provided for clarification.

Some menu settings act as toggle features. For example, the Matrix Mode only displays one option. If the mode is set to blocking, the only option will be "1", NON-BLOCKED. Pressing "1" will change the mode to non-blocking and the value displayed in parentheses will read BLOCKED. The new option displayed will be "1" for NON-BLOCKED. In short, pressing "1" repeatedly will toggle between blocking and non-blocking modes.

CAUTION: Pay special attention to the top of the menus in the IO CONNECTION menus. If the PATH option is ON, it will be necessary to use the SWITCH option to complete the connection. Additionally, after selecting the input to connect, the active input number will be displayed at the top of the list of available outputs.

MT105-130/131/132 MAIN MENU

1: MATRIX MODE (0)
2: IO CONNECTION
3: OUTPUT ON/OFF
4: SIGNAL DETECT
5: SAVE CONFIGURATION
6: RESET CONFIGURATION TO DEFAULT
7: VERSION
8: STATUS
9: HELP
ESC: GO BACK

MT105-130/131/132 EXPANDED MENUS

1. MATRIX MODE

MATRIX MODE (NON-BLOCKED)

1: BLOCKED

ESC: GO BACK

2. IO CONNECTION

IO CONNECTION

1: PATH SWITCHING (ON)

PATH SWITCHING (ON)

The current value is ON. See the [..P] and [SW] commands for details.

1: OFF

ESC: GO BACK

2: CONNECT IO (IN2OUT1)

CONNECT IO

First, the system will prompt for the input number. Select from the list provided and then the output list will be displayed.

1: SELECT INPUT1
2: SELECT INPUT2
3: SELECT INPUT3
4: SELECT INPUT4
5: SELECT INPUT5
6: SELECT INPUT6
7: SELECT INPUT7
8: SELECT INPUT8
ESC: GO BACK

After selecting the input, the system will prompt for the output. In this case, it shows INPUT2 at the top of the list. Select the output to connect to Input 2.

CONNECT IO

INPUT2

1: SELECT OUTPUT1
2: SELECT OUTPUT2
3: SELECT OUTPUT3
4: SELECT OUTPUT4
5: SELECT OUTPUT5
6: SELECT OUTPUT6
7: SELECT OUTPUT7
8: SELECT OUTPUT8
9: ALL OUTPUTS
ESC: GO BACK

3: SWITCH

ESC: GO BACK

3. OUTPUT ON/OFF

OUTPUT ON/OFF

After a selection, the same menu will be redisplayed with the update value in parentheses.

1: OUTPUT1 (ON)
2: OUTPUT2 (OFF)
3: OUTPUT3 (OFF)
4: OUTPUT4 (OFF)
5: OUTPUT5 (OFF)
6: OUTPUT6 (OFF)
7: OUTPUT7 (OFF)
8: OUTPUT8 (ON)
9: ALL OUTPUTS ON
A: ALL OUTPUTS OFF
ESC: GO BACK

4. SIGNAL DETECT

SIGNAL DETECT

After the selection, the status will be displayed with an option to refresh the status.

1: INPUT SIGNAL DETECT
2: OUTPUT SIGNAL DETECT
ESC: GO BACK

5: SAVE CONFIGURATION

SAVE CURRENT CONFIGURATION?

1: YES

2: NO

ESC: GO BACK

6: RESET CONFIGURATION TO DEFAULT

RESET CARD TO FACTORY DEFAULT?

This is equivalent to the [CLR] command.

1: YES
2: NO
ESC: GO BACK

7: VERSION

This selection displays the card's firmware version and then redisplays the Main Menu. It is equivalent to the [VER] command.

8: STATUS

This selection displays the card status and then redisplays the Main Menu. It is equivalent to the [Cn] command.

9: HELP

*This selection displays a list of commands available for the **MT105-130/131/132** along with a brief description. It is equivalent to the [HELP] command.*

ESC

This selection returns you to the parent menu with the listing of all cards.

7.4.5 MENU MODE EXAMPLES

All Menu Mode examples assume an **MT105-130/131/132** 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: The communication software you use may echo each character as it is typed when entering numeric values (not selecting menu items). For example, entering a value of 03 may appear as 0033 on the screen.

1. Connect Input 1 to both Output 1 and 2 using the PATH connection.

Follow the keystrokes below:

Enter	List available cards
01	Select MT105-130 in slot 1
2	Select IO CONNECTION Menu
1	Select PATH Switching
	If the value for PATH in "( )" shows ON, skip this step and the next two.
1	Set PATH ON (ESC if already ON)
	Path is ON. Input-to-output connections will be preset and will not actually be connected until the SWITCH command is sent.
ESC	Return to previous menu
2	Select CONNECT IO
1	Select INPUT 1
1	Select OUTPUT 1
2	Select CONNECT IO
1	Select INPUT 1
2	Select OUTPUT 2
3	Select SWITCH
	This connects the input to the outputs.
ESC	Return to the MAIN Menu

2. Turn ON output 8

Starting from the Main Menu, follow the keystrokes below.

3	Select OUTPUT ON/OFF
	If the value in "( )" for Output 8 shows ON, then Output 8 is already ON. Press ESC to return to the Main Menu. If the value reads OFF, then proceed to the next steps.
8	Select Output 8
	This toggles the status from OFF to ON.
ESC	Return to the Main Menu

3. Check for valid input signals

Starting from the Main Menu, follow the keystrokes below.

4 Select SIGNAL DETECT
1 Select INPUT SIGNAL DETECT
The status of each input will be displayed. Those with good inputs will show ON, those with no input signal will show OFF.
ESC Return to SIGNAL DETECT menu
ESC Return to the Main Menu

4. Display Card Status

Starting from the Main Menu, follow the keystrokes below.

8 Display 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 **MT105-130/131/132**; however, we would like to offer suggestions for the following:

8.1 NO DISPLAY

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 display, see Cause 2.

Cause 2: The correct path is not selected.

Solution: Select the card input to output connection for the proper source to display connection. See RS-232 accessible commands, [IO] and [ON], in section 7. If no display is present, 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 display present, see Cause 4.

Cause 4: The receiver or transmitter has a problem.

Solution: Connect the transmitter directly to the receiver. If the display is working, see Cause 5.

Cause 5: The display has a problem.

Solution: Make sure that the display is powered. If there is still no display, call ALTINEX at (714) 990-2300.

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9.1 LIMITED WARRANTY/RETURN POLICIES

Please see the ALTINEX website at www.altinex.com for details on warranty and return policies.

9.2 CONTACT INFORMATION

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