

**Multi
Tasker™**

MANUAL PART NUMBER: 400-0207-002

MT112-102

**12 ISOLATED RELAYS CONTROL CARD
FOR MULTI-TASKER™
USER'S GUIDE**

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PRECAUTIONS / SAFETY WARNINGS 1

Please read this manual carefully before using your **MT112-102**. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **MT112-102** and to prevent fire and shock hazard.

1.1 GENERAL

- Qualified ALTINEX service personnel, or their authorized representatives must perform all service on the **MT112-102**.
- To prevent fire or shock, do not expose this unit to rain or moisture. Do not place the **MT112-102** in direct sunlight, near heaters or heat radiating appliances, or near any liquid.
- Handle the **MT112-102** carefully. Dropping or jarring can damage the card.
- Do not pull the cables that are attached to the **MT112-102**.
- Insert the card carefully into the slots of the MultiTasker™ without bending any edges.
- When removing a card, please make sure that the card to which it is attached is also pulled out simultaneously.

1.3 CLEANING

- Clean only the connector area with a dry cloth. Never use strong detergents or solvents, such as paint thinner or acetone or nail polish remover.

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.

ABOUT YOUR MT112-102 2

MT112-102 12 ISOLATED RELAYS Control Card

The **MT112-102** has twelve relays, each capable of passing as much as 1 amp at up to 48 volts. The loads should be resistive only. These relays are not designed to drive motors or any type of inductive or capacitive load.

The 12 relays allow on-off control of external devices such as projectors or lights, or the raising and lowering of projector screens.

Each of the 12 relays is independently controlled through the front panel, RS-232 bus commands or both. Although independently controlled, the front panel and RS-232 commands may be configured to switch multiple relays on or off with a single key or command.

TECHNICAL SPECIFICATIONS 3

FEATURES/DESCRIPTION	MT112-102
GENERAL	
Control Ports	
Connectors	(6) 5-pin Terminal Blocks

Table 1. **MT112-102** General

MECHANICAL	MT112-102
Basic Enclosure Slots Required	One
Weight	1.0 lb (0.45 kg)
Connector Panel	Black
T° Operating	10°C-55°C
T° Maximum storage	0 to 75°C
Humidity	90% non-condensing
MTBF (calc.)	40,000 hrs

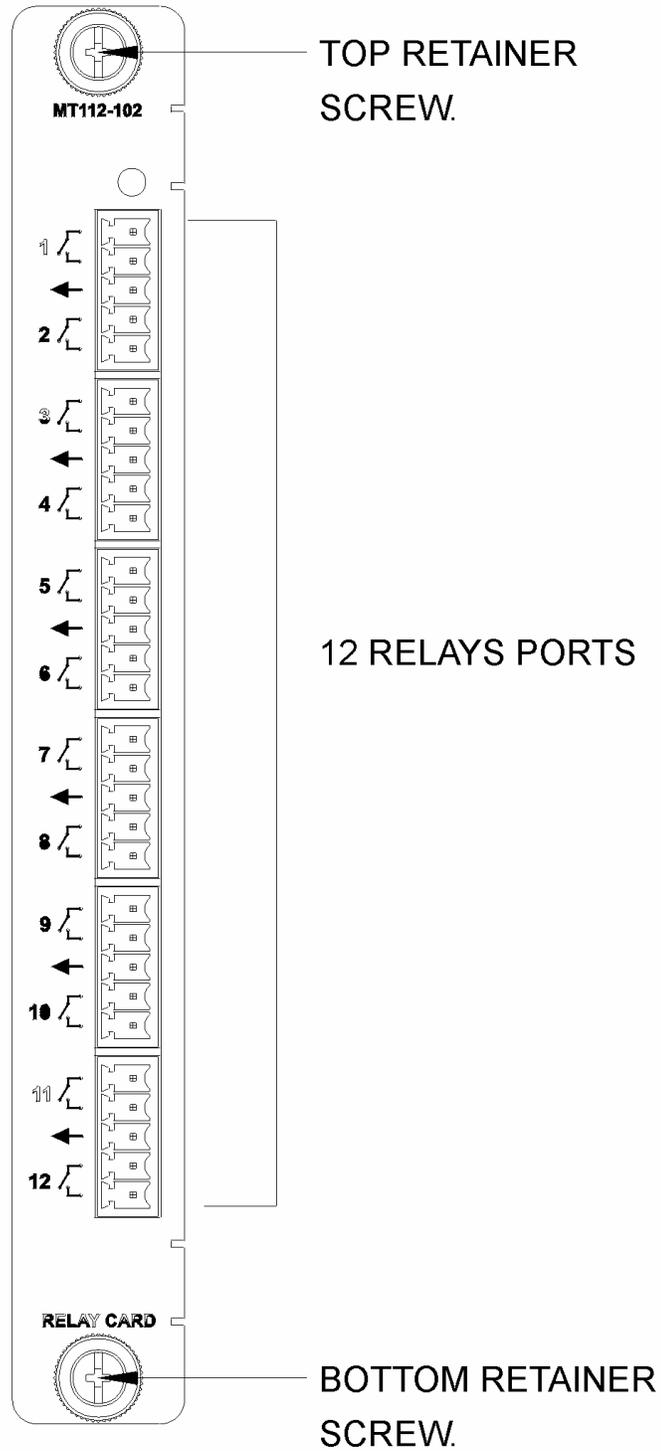
Table 2. **MT112-102** Mechanical

ELECTRICAL	MT112-102
Relays	
Maximum Voltage	48VDC
Maximum Current	1A AC/DC Resistive
Power	
From enclosure	+6V, 200mA, 1.2W

Table 3. **MT112-102** Electrical

PRODUCT DESCRIPTION

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APPLICATION DIAGRAM

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DIAGRAM 1: TYPICAL CONFIGURATION

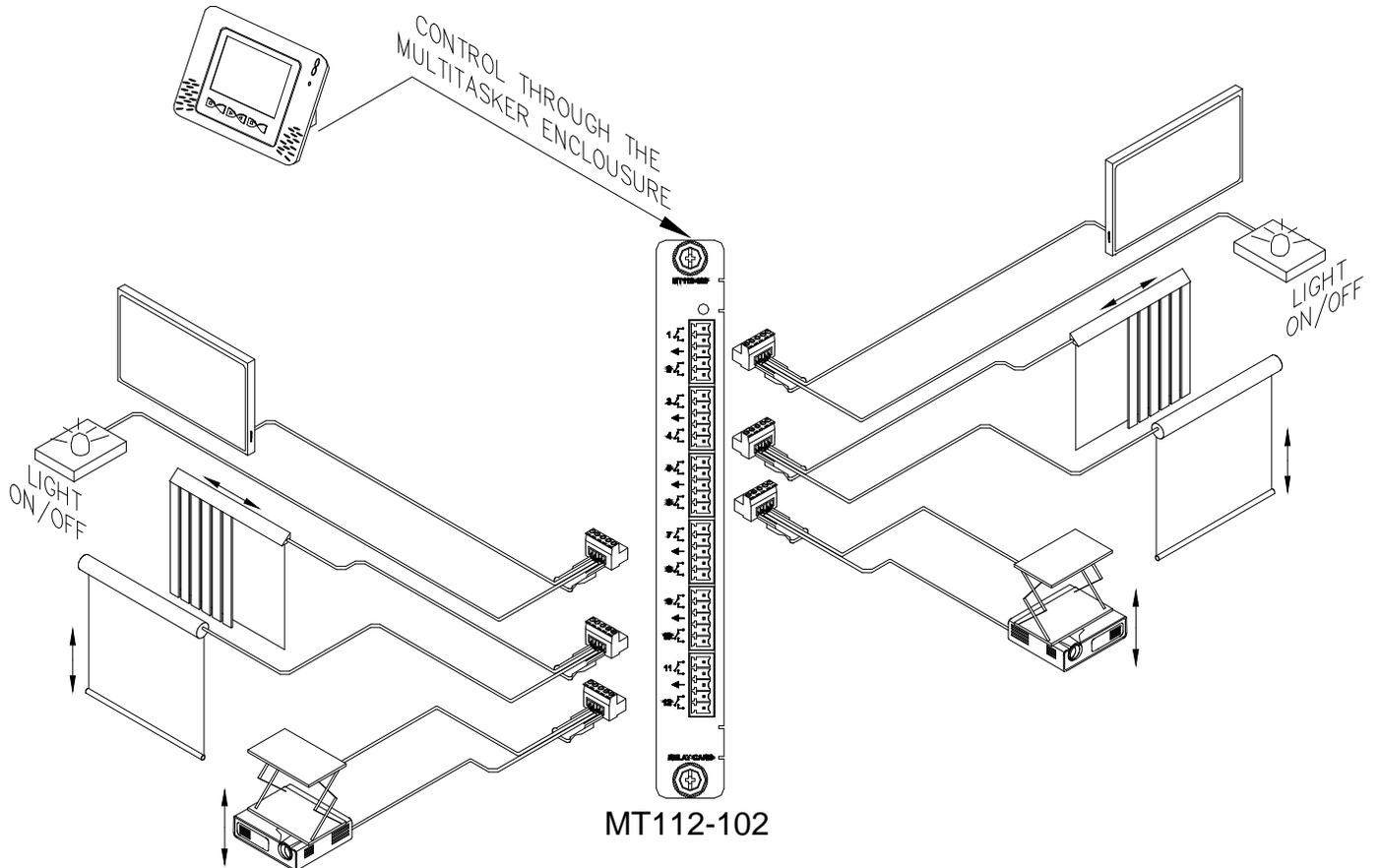
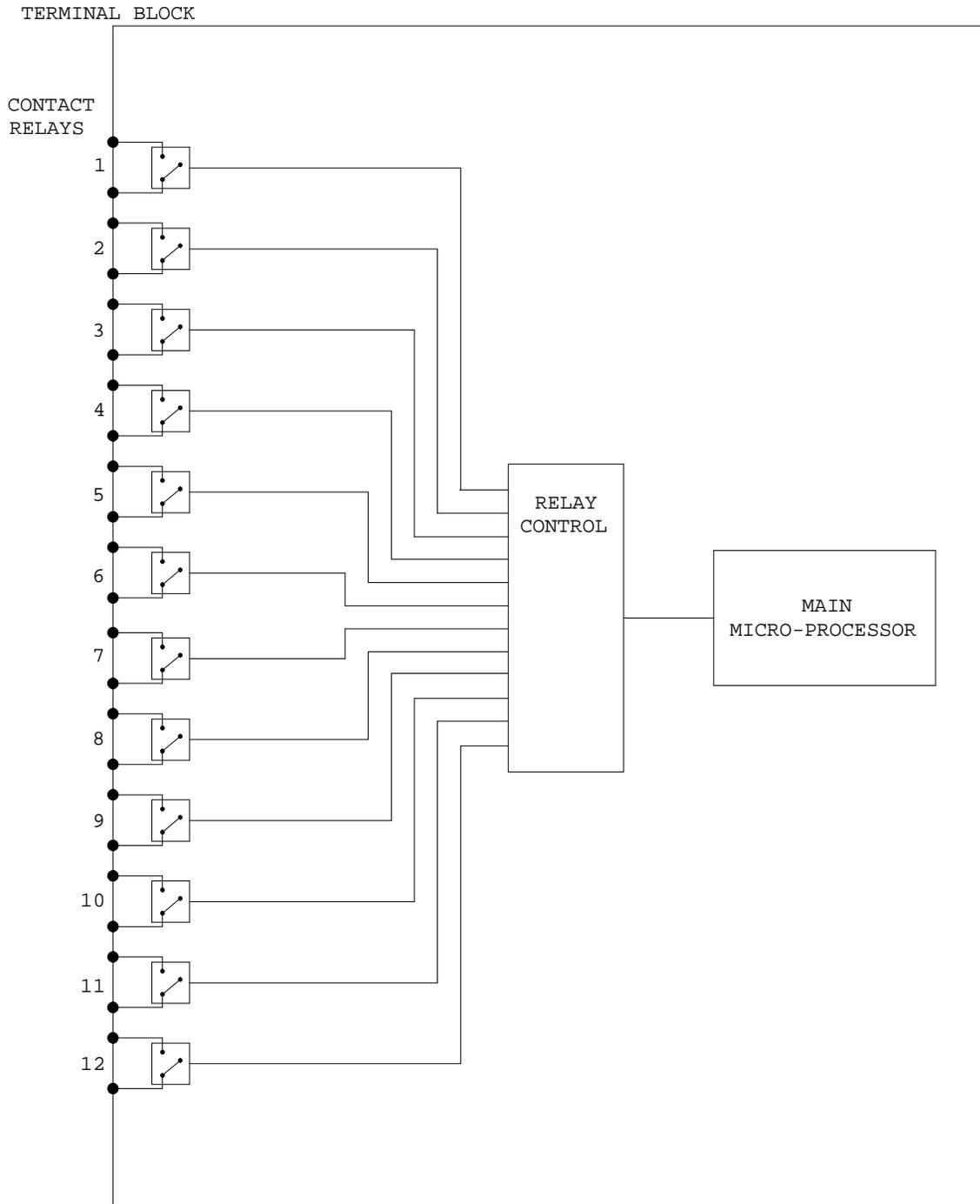


DIAGRAM 2: INTERNAL VIEW

MT112-102



INSTALLING YOUR MT112-102 6

- Step 1.** Turn off power to the Multi-Tasker™ enclosure.
- Step 2.** Slide the **MT112-102** into an available slot in the MultiTasker™ Basic Enclosure in order to connect to the bus. Make sure that the **MT112-102** card fits into place. Secure the card to the MultiTasker™ by tightening the retainer screws located on the top and bottom of the **MT112-102** card.
- Step 3.** Turn on power to the Multi-Tasker™ enclosure.
- Step 4.** Connect control cables as required to the input/output connector of the **MT112-102**.
- Step 5.** Starting from the left, identify the slot number where the **MT112-102** card is plugged into the Enclosure and note that it is for RS-232 control.

OPERATION 7

7.1 RS-232 CONTROL

The **MT112-102** 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 **MT112-102** 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 Multi-Tasker™ system are capable of performing various functions, as well as providing feedback to the user or control system. Some commands instruct a card to perform specific actions. Other commands request information about the status of the card. Other commands do both at the same time.

A command that instructs the card to simply perform an action will generate feedback of “[]”. The open and close brackets indicate 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.

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 status of the card.

Command Format: [CnUi]

Cn = Card ID (n = # from 1 to max slots)
Ui = Unit ID (i = from 0 to 9)

Example:

An **MT112-102** card is in slot 2. All 12 relays are closed (ON). Send the command [C2], and receive the feedback below. The relay status shows all 0's, or closed.

RL01-06: 000000

RL07-12: 000000

2. [CLR]

This command performs a reset of the card and restores settings to the factory defaults.

Command Format: [CLRCnUi]

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

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

Example:

Send the command [CLRC4] to reset the card in slot 4 to its factory defaults. After the reset, the status [C4] will be as follows:

RL01-06: 111111

RL07-12: 111111

3. [TEST]

This command performs a test of the memory IC's on the **MT112-102**.

Command Format: [TESTCnUi]

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

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

Example:

Perform a test of the memory on the **MT112-102** in slot 4. Send the command [TESTC4] and observe the following feedback:

MEMORY IC TEST RESULTS:

U14 OK

U19 OK

U20 OK

U21 OK

U31 OK

U32 OK

FEEDBACK COMMANDS ?, ?Cn and STA

The next three commands are a function of both the card and the front panel and are only available with Multi-Tasker™ Front Panel systems that have the following firmware:

690-0122-015 = Version 015 or later.

690-0123-004 = Version 004 or later.

690-0124-018 = Version 018 or later.

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

4. [?]

This command will return general information about the Multi-Tasker™ and cards installed in the unit.

Command Format: [?Ui]

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

Example:

A Multi-Tasker™ with Unit ID 1 has a front panel with part number MT101-101 and contains an MT112-102. Send the command [?U1] and receive the following feedback:

```
[(MT101-101U1) (MT112-102C01)]
```

MT101-101U1 = Panel Number and Unit ID

MT112-102C01 = MT112-102 in slot 1

5. [?C]

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

Command Format: [?CnUi]

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

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

Example:

The MT112-102 in slot 4 has relay one closed and all other relays open. Send the command [?C4] to receive feedback status similar to the following.

```
[(MT112-102C04)(VR690-0188-003C04)  
(ON011111111111C04)]
```

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.

MT112-102	= Card Model Number
VR690-0188-003	= Firmware version
ON011111111111	= Relay Status

The Relay Status line is read from left to right as relays one through 12. A "1" indicates the relay is open and a "0" indicates the relay is closed. In this case, relay one is closed and relays two through 12 are open.

6. [STA1]

This command enables automatic feedback from the front panel. The command affects any card with auto-feedback capability, not just the **MT112-102**. The default at power on or reset is STA0, off. For more details, see the [?C] command definition.

Command Format [STA1]

NOTE: The CLR command will return feedback on each parameter that changes.

Feedback Prefix Definitions:

ON Relay Status

Example 1:

Command = [WRRL*=1C4]

Feedback = (ON111111111111C04)

ON = Relay Status

C04 = Card/Slot number

7. [STA0]

This command disables automatic feedback from the card and front panel. The command affects any card with auto-feedback capability, not just the **MT112-102**. The default at power on or reset is STA0, off.

Command Format: [STA0]

8. [VER]

This command receives the software version and card model for the **MT112-102** card.

Command Format: [VERCnUi]

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

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

Example:

There is an **MT112-102** in slot 4. Send the command [VERC4] and receive the following feedback:

```
[MT112-102 690-0188-003 C04]
```

MT112-102 = Model Number

690-0188-003 = Software Version

C04 = Card ID (slot 4)

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: [FBDmCnUi]

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

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

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

Example:

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

ID COMMANDS: RSI, SIDn, SIDnCi, SID+, RSN

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 the installed cards to take their slot number as their ID number, regardless of the slot in which they are installed.

Some cards require more than one slot in the Multi-Tasker™ 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.

The ID commands work with all Multi-Tasker™ 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 which includes:

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.

10. [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. 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.

11. [SIDn]

This command sets all the cards installed in the Multi-Tasker™ 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.

12. [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.

13. [SID+n]

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 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.

14. [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]

15. [RDRL]

This command displays the current state of one or all of the relays.

Feedback is in the form of a "1" or a "0".

0 = Closed (ON)

1 = Open (OFF)

Command Format: [RDRLkCnUi]

k = Relay number (k = 1 to 12, * for all)

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

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

Example 1:

There is an **MT112-102** in slot 4. Relay 1 is closed, on. Send the command [RDRL1C4] and receive the following feedback:

0

Example 2:

All the relays on the card in the previous example are open, off. Send the command [RDRL*C4] and note the following feedback:

111111111111

16. [WRRLk]

This command is used to open or close a single relay or all the relays. All must be set to the same state using this command.

Command Format: [WRRLk=xCnUi]

k = Relay Number (k = 1 to 12, or * for all)

x = Represents the relay state and position
= 0, Close Relay (ON)
= 1, Open Relay (OFF)

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

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

Example 1:

An **MT112-102** in slot 4. Open Relay 2 only by sending the command [WRRL2=1C4].

Example 2:

Set all 12 relays open, (OFF), by sending the command [WRRL*=1C4].

17. [WRS]

This command writes/programs a subroutine in the **MT112-102** memory by adding functions to its subroutine. The subroutines may be used to control other card's in the Multi-Tasker™ system, but cannot be used to control the Front Panel LED's.

CAUTION: Do NOT confuse this command with the {WRS} command, which writes subroutines to the Front Panel memory.

Command Format: [WRSm=F₁,F₂,...;CnUi]

m = Subroutine ID (m = # from 1 to 180)

F₁,F₂... = Functions: functions MUST be separated by a comma.

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

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

The maximum number of characters, including commas, that may be sent to a subroutine in a single command is 16. If the length of the command string exceeds the maximum, break the functions into smaller groups. Previous commands are NOT overwritten. The subroutine is appended with the new commands.

Example:

Program Subroutine 2 for the card in slot 4 with the following functions: ON1C3, ON2C3 and ON123456C7. Since the complete command, [WRS2=ON1C3,ON2C3,ON123456C7;C4], is more than 16 characters, it must be broken up.

Subroutines are written accumulatively. Therefore, to build the previous command string, send the following commands:

[WRS2=ON1C3,ON2C3;C4]

[WRS2=ON123456C7;C4]

After sending these commands, the contents of Subroutine 2 will contain the following:

ON1C3, ON2C3, ON123456C7

18. [RDS]

This command reads and displays the functions programmed in a subroutine.

Command Format: [RDSmCnUi]

m = Subroutine (m = # from 1 to 180)

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

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

Example 1:

Read back the subroutine in the previous example for the WRS command. The card is in slot 4 and the Subroutine is 2. Send the command [RDS2C4] and receive the following feedback:

ON1C3, ON2C3, ON123456C7

Example 2:

Read back the contents of an empty subroutine. The card is in slot 4 and the subroutine is Subroutine 9. Send the command [RDS9C4] and receive the following feedback:

Subroutine Empty

19. [CLRS]

This command clears the contents of memory for one or all subroutines.

Command Format: [CLRSmCnUi]

m = Subroutine (m = # from 1 to 180, * = all)

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

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

Example 1: Clear One

Clear Subroutine 2 of C4. Send the command [CLRS2C4] and observe the following feedback:

Sub Clear

Example 2: Clear ALL

Clear all subroutines of the card in slot 4. Send the command [CLRS*C4] and observe the following feedback:

ALL SUBS WILL BE CLEARED
PLEASE WAIT

When all subroutines have been cleared, the following feedback will be displayed:

TASK COMPLETED

20. [SUB]

This command executes the functions stored in a subroutine.

These subroutines are stored directly on the card and are separate from the commands stored in the Front Panel. Therefore, the front panel LED's cannot be controlled with commands stored on the control card, but they may be used to control other cards.

Command Format: [SUBmCnUi]

m = Subroutine (m = # from 1 to 180)

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

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

Example:

The function ON1C3 is stored in Subroutine 55 of C4. Send the command [SUB55C4] and the stored function will be executed. Output 1 of card 3 will now be turned on.

21. [HELP]

This command displays information available for the Multi-Tasker interface commands.

Command Format: [HELPCnUi]

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

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

Example:

In order to view the RS-232 commands available for the **MT112-102** card in slot 2, send the command [HELPC2]. The commands, along with a brief description, will be displayed in the Terminal Window.

GROUP COMMANDS

The next few commands are group commands. The use of groups allows several boards, with the same functions, to be controlled simultaneously with a single command. These commands apply to all cards, not only the **MT112-102**. Although not designed specifically for the **MT112-102** they are provided for information purposes.

22. [WR]

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

In Multi-Tasker™ 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

Command Format: [WRCn₁Cn₂...GkUi]

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

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

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

Example:

Group cards 2, 4, and 6 as group 5 of Unit ID 1 by sending the command [WRC2C4C6G5U1]. After executing this command, cards 2, 4 and 6 will be grouped together as group 5 of Unit ID 1. 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.

23. [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: [RMCn₁Cn₂...GkUi]

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

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

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

Example:

Group 5 consists of the cards located in slots numbered 2, 4, and 6. Remove just cards #4 and #6 from the group by sending the command [RMC4C6G1]. The system will return the following feedback:

[G5=C2]

24. [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: [RMGkUi]

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

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

Example:

Group 5 consists of the cards located in slots number 2, 4 and 6. 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*Ui]

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

Example:

Group 5 consists of cards 2, 4 and 6. 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

25. [RD]

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

Command Format: [RDGkUi]

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

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

Example:

The cards in slots 2, 4 and 6 are part of group 5. Read the member data for group 5, by sending the command [RDG5]. The system will return feedback as follows:

[G5=C2C4C6]

The feedback shows G5 (group 5) and then the cards that make up group 5. In this case, group 5 includes C2, C4 and C6.

26. [CLM]

This command removes the members in a group and leaves the group empty.

Command Format: [CLMGkUi]

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

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

Example:

Group 5 of Unit ID 1 contains the cards in slots 2, 4 and 6. Read the member data for group 5 of Unit ID 1. Send the command [RDG5U1] and receive the following feedback:

[G5=C2C4C6]

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

[G5=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 memory IC's.
- 4) [?] Show system cards.
- 5) [?C] Show card information.
- 6) [STA1] Enable auto feedback.
- 7) [STA0] Disable auto feedback.
- 8) [VER] Show software version.
- 9) [FBD] Feedback delay on/off.
- 10) [RSI] Reset Card ID's.
- 11) [SIDn] Set all Card ID's.
- 12) [SIDnCi] Set one Card ID.
- 13) [SID+n] Set Card ID offset.

- 14) [RSN] Read Card slot number.
- 15) [RDRL] Display relay port states.
- 16) [WRRLk] Set relay ports.
- 17) [WRS] Write subroutine to memory.
- 18) [RDS] Read subroutine from memory.
- 19) [CLRS] Clear subroutine on the board.
- 20) [SUB] Execute a subroutine.
- 21) [HELP] Display available commands.

Group Commands

- 22) [WR] Groups multiple cards.
- 23) [RMC] Remove members from group.
- 24) [RMG] Delete a group.
- 25) [RD] Displays group members.
- 26) [CLM] Delete a group.

7.4 MENU MODE

MENU MODE commands are RS-232 commands that allow the same functionality as the 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 commands. The system then responds based upon selections made by the user.

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

The MENU driven commands are only available with Multi-Tasker™ Front Panel systems that have the following firmware:

690-0122-015 = Version 015 or later.

690-0123-004 = Version 004 or later.

690-0124-015 = Version 018 or later.

NOTE: In MTSetup™, send the command [VER] from the Terminal Window. The system will respond with feedback that includes 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
Control	
Switch	[WRRL]
Status	[VER], [C]
Help	[HELP]

7.4.2 USING MENU MODE

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

1. In order to enter menu mode, the system needs to be connected to a computer running 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: 04: **MT112-102**

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

5. Find the two digit number representing the card ID whose setup requires changing. They will be the first two characters in the line.
6. Enter the two digit number associated with the card, and a menu with options available for that card will appear on the screen. In the example above, press "04".

WARNING: Do NOT enter any characters except those relating to the desired menu. Pressing ENTER after "04" will force the system back to the original prompt.

7. After selecting the **MT112-102** 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 to access. A sub menu will appear next.

2. SUB MENUS

Each sub menu will either display 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 any menu will take you up to the previous menu.

7.4.4 MT112-102 MENUS

Following are the menus available to the **MT112-102**. 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 in parentheses that indicate the current setting or value of that parameter. Some menu settings act as toggle features. For example, relay controls only provide one option. If the relays is open, it may be closed. If the relay is closed, it may be opened.

MT112-102 MAIN MENU

- 1: CONTROL
- 2: SETUP
- 3: STATUS
- 4: HELP

MT112-102 EXPANDED MENUS

1. CONTROL

TOGGLE RELAYS: ENTER 2 DIGIT NUMBER

01:1 (1)	07:7 (1)
02:2 (1)	08:8 (1)
03:3 (1)	09:9 (1)
04:4 (1)	10:10 (1)
05:5 (1)	11:11 (1)
06:6 (1)	12:12 (1)
00: All OFF(1)	99: All ON(0)
ESC:GO BACK	S:STATUS
KEY=	

2. SETUP

This menu does not apply.

3. STATUS

Equivalent to the [C] command.
Returns the card status/relay states.

4. HELP

Equivalent to the [HELP] command.
Displays a list of commands available for the **MT112-102** along with a brief description.

7.4.5 MENU MODE EXAMPLES

1. Turn ON Relay 10

An **MT112-102** is in slot 17. All relays are currently off. Turn on relay number 10. Start by clicking the mouse in the Terminal window and pressing the ENTER key. The system will return a list of available cards with Menu Mode features:

KEY Comments

- | | |
|-----|---|
| 17 | Select MT112-102 in slot 17 |
| 1 | Select Control Menu |
| | If the value in parentheses for relay number 10 is 1, then the relay is open. |
| 10 | Toggle Relay Number 10 |
| | The system will return feedback indicating the relay is now ON. |
| ESC | Return to the Main Menu |

2. All Relays ON

An **MT112-102** is in slot 4. Turn on all relays regardless of whether they are on or off. Press ENTER for the a list of available cards.

KEY Comments

- | | |
|-----|---|
| 04 | Select MT112-102 in slot 4 |
| 1 | Select Control Menu |
| 99 | Turn ON all relays. |
| | The system will return feedback indicating all relays are now ON. |
| ESC | Return to the Main Menu |

3. Display Card Status

Display the status of the **MT112-102** in slot 2. Starting from the **MT112-102's** Main Menu, follow the keystrokes below:

- | | |
|---|----------------------|
| 3 | Displays card status |
|---|----------------------|

NOTE: The status is displayed first and then the Main Menu is redisplayed.

TROUBLESHOOTING GUIDE

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We have carefully tested and have found no problems in the supplied **MT112-102**; however, we would like to offer suggestions for the following:

RELAY DOES NOT SWITCH

NOTE: This section assumes there is communication between the MTSetup™ software and the Multi-Tasker™.

Cause 1: Bad Command

Solution 1: If the relay is not switching from a programmed button or from other software control, the problem may be in the programming. Use MTSetup™ to send the commands directly (see the [WRRL] command for details).

If the relay switches, the problem is in the programming or there is a problem with the button, see Solution 2.

Solution 2: If the relay cannot be controlled from the assigned button, assign a known good key to control the relay. If the relay switches, the card cage may require service. Call ALTINEX at (714) 990-2300.

Solution 3: If there is still no response from the relay, there may be a problem with the programmed functions. Call ALTINEX at (714) 990-2300.

Cause 2: Bad Relay

Solution 1: Disconnect the cables attached to the relay port. Attach an ohmmeter across the two connector pins of the problem relay. Send commands to open and close the relay. If the meter indicates the relay is opening and closing, there may be a problem with the cable. If the meter does not indicate a change, see Solution 2.

Solution 2: Move the ohmmeter to another relay port and repeat the above process on a working port. If the relay operates properly, there may be a problem with the card. Call ALTINEX at (714) 990-2300.

ALTINEX POLICY

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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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