

Welcome!

We greatly appreciate your purchase of the MT302-121 12-Slot Digital MultiTasker Enclosure. We are sure you will find it reliable and simple to use. Superior performance for the right price, backed by solid technical and customer support is what ALTINEX has to offer.

We are committed to providing our customers with Signal Management Solutions® to the most demanding audiovisual installations at competitive pricing and we welcome you to join the ranks of our many satisfied customers throughout the world.

1. Precautions and Safety Warnings

Please read this manual carefully before using your MT302-121 and keep it handy for future reference. These safety instructions are to ensure the long life of your MT302-121 and to prevent fire and shock hazards. Please read them carefully and heed all warnings.

1.1 General

- Do not open the unit; there are high-voltage components inside.
- There are no user serviceable parts inside. Qualified ALTINEX service personnel must perform all service on the MT302-121.

1.2 Installation Precautions

- The MT302-121 is designed to be rack mounted, but can also be installed on a flat, level surface in a dry area away from dust and moisture.
- To prevent fire or shock, do not expose this unit to water or moisture. Do not place the MT302-121 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 MT302-121 carefully. Dropping or jarring can cause damage.

2. Installation Procedures

Step 1. Connect the power entry connector of the MT302-121 to AC power using the AC cord provided.

The power supply is universal and works throughout the world with voltages from 110V-240VAC.

Step 2. Connect the MT to your local network using the Ethernet port on rear of enclosure.

Step 3. The IP address is visible in the LCD panel on the front of the enclosure. Use this IP address and port 23 to control the enclosure and installed cards use the telnet commands in this manual.

You may also use your web browser to connect to the MT302-121 and view the cards installed and status information.

Step 4. The unit is now operational. Launch your control software or application for system control.

3. Limited Warranty/Return Policies

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

- Do not pull any cables that are attached to the MT302-121.
- Do not place heavy objects on top of the MT302-121.
- Connect the unit to a properly rated supply circuit. If not used for an extended period, disconnect from AC power.
- Never restrict the airflow through the fan or vents.
- Distribute units evenly inside the rack. Hazardous conditions may be created by an uneven weight distribution.

1.3 Cleaning

- Unplug the MT302-121 before cleaning.
- Clean only 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 unit. Do not open the unit to clean.

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 instructions found herein, 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.

4. Technical Specifications

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

Features/Description	MT302-121
General	
Connectors	
RS-232	5-pin terminal block (1)
Ethernet	RJ45 (1)
Input Power	IEC M (1)
Connectors (Front panel)	
Ethernet	RJ45 (1)
IR receiver	
IR blaster	
Compatibility	
Cards	All Digital MultiTasker Cards
Communication	RS-232
Accessories Included	
Hardware	-Terminal block connector for RS-232 -Cable ties
Power Cord	NEMA to IEC
Optional Accessories	
MT399-102	Mounting ears with accessories
MT399-105	Package of 5 pcs blank MT card

Table 1. MT302-121 General

Mechanical	MT302-121
Available Slots	12
Width	17.4 in (442mm)
Depth	13 in (330mm)
Height	5.2 in (132mm)
Weight (without cards)	
Back Panel	Black
T° Operating	10°C-35°C
T° Maximum	50°C
Humidity	90% non-condensing
MTBF (calc.)	40,000hrs

Table 2. MT302-121 Mechanical

Electrical	MT302-121
Enclosure	
Power Input	85VAC - 264VAC @ 50/60Hz
Maximum Power	300 W

Table 3. MT302-121 Electrical

5. About Your MT300-121

Basic foundation of Digital MultiTasker solutions

3U high, full rack wide

TCP/IP control

LCD display

ON/OFF button

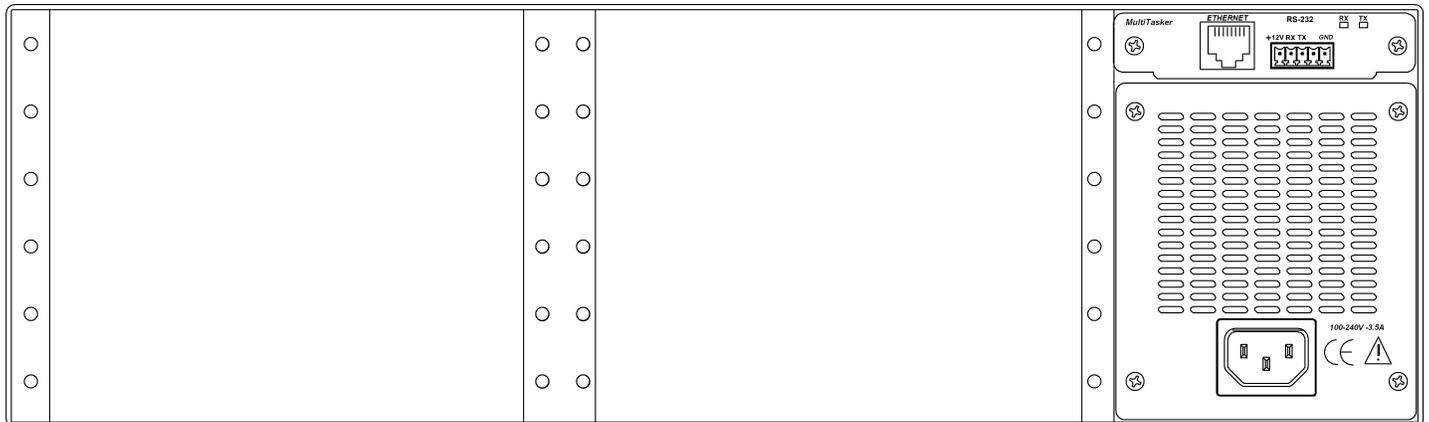
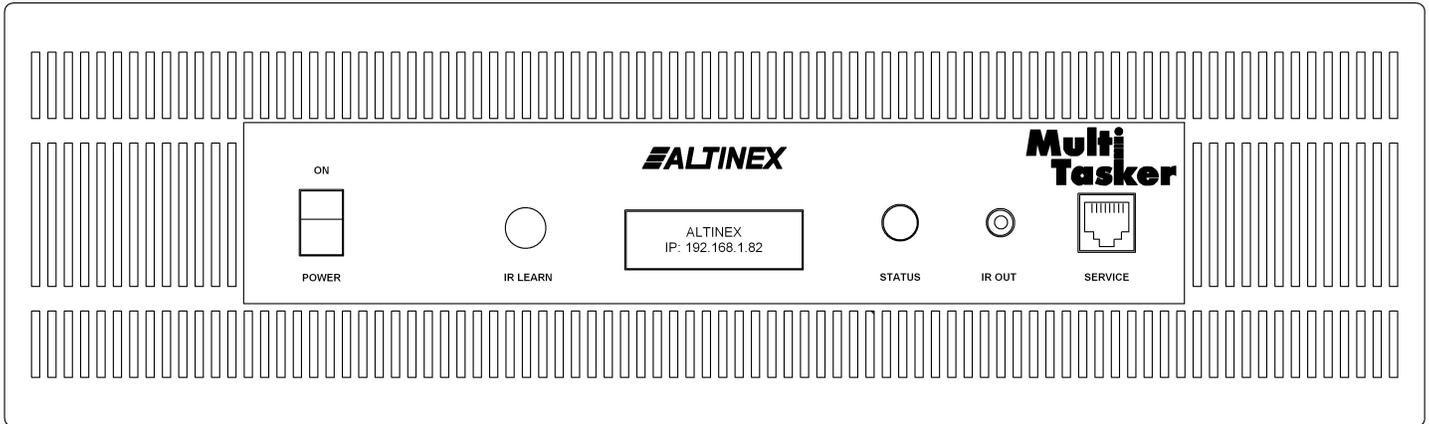
IR receiver/IR blaster

Ethernet control (2 ports)

ALTINEX offers the 12-Slot enclosure MT302-121 for digital MultiTasker cards. In addition to the 12 available slots, the MT302-121 comes with 2 Ethernet ports and a front panel. The MultiTasker is controlled from the LAN or an easy to use web based interface.

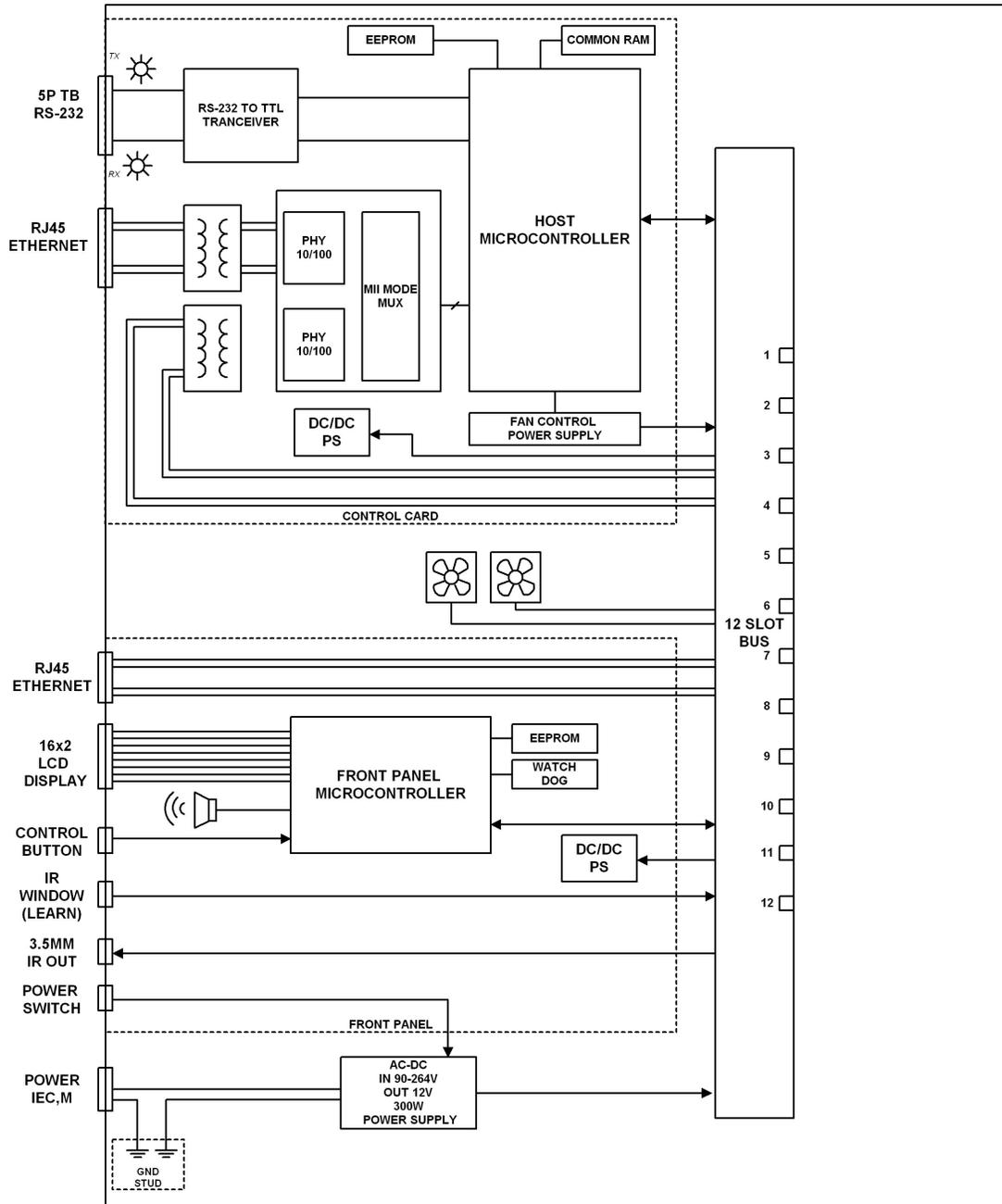
The front panel has an LCD to display basic information about the system and cards installed; including the IP address of the MultiTasker on the network.

The MultiTasker utilizes a simple ASCII based command set to control individual cards installed in the enclosure. Individual cards are reference using their slot number as a unique identifier.



6. Application Diagrams

Diagram 1: Internal View



7. Operation

The MT302-121 has many advanced remote control capabilities, which are accessible through TCP/IP communication. Control is accomplished through a computer, a control system, or any device capable of establishing a standard TCP socket to the MT302-121s IP address.

7.1 Terminology

The terms below are used to increase the legibility of the descriptions used in this section of the manual.

Cnn	This term refers to a MultiTasker card where the ID number is 2-digits; nn; typically the slot number of the card, but may also be an assigned value. Example: C01, C02, C20
string	A string is one or more text characters that form a command, describe output data, or refer to incoming feedback.
feedback	Feedback refers to data that is received from the MultiTasker or any of the cards installed in the enclosure.

7.2 LAN Connection

A computer or control system is used to control the cards in the MultiTasker. Connect to the RJ45 on the front or rear of the MT302-121.

7.3 TCP/IP Control

A third party controller or touch panel can be used to control the MT302-121. The TCP/IP control commands provide full control of the enclosure and the installed cards.

The control commands for the MT302-121 are in a simple ASCII character format. Control can be achieved from the same room, or remotely via the Ethernet using a CAT5/6 cable terminated in the T568B standard.

7.4 Network Discover

The default IP address for all MT302-121s is 192.168.10.85 on port 23 with DHCP set to automatic. If the switcher is on a network, its IP is assigned automatically. If you connect the switcher directly to a laptop, the IP is 192.168.10.85.

In order to find out the address assigned to switchers on a network, broadcast the UDP discover command to the network on port 30305. The discover command is as follows:

?Altinex

Send "?Altinex" in a single packet. Do not type the characters individually or the command is ignored.

Any MT302-121s on the network respond with feedback similar to the following single line:

```
[MT302-121,00:1E:C0:C9:6A:24,00023,
192:168:1:121,255:255:255:0:192:168:1:254]
```

The data inside the brackets includes the switcher alias, switcher MAC address, and TCP/IP port, plus the IP address, subnet mask, and gateway address assigned to the switcher by the network.

Use this information to establish a TCP/IP connection to the switcher for control and/or configuration.

7.5 Protocol

The protocol for the MT302-121 uses a simple ASCII character format.

1. Brackets "[]" are part of the command for the controller or plug-in card.
2. Use uppercase letters for all commands.

The MT302-121 has many advanced remote control capabilities which are accessible through network communication. Control can be accomplished using a computer or a control system.

The enclosure and cards in a MultiTasker 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, request status information, and some do both simultaneously.

A command that does not request specific information will generate feedback of "[]". The open bracket immediately followed by a closed bracket indicates the card or unit received a valid command. If the command requested information from the card or enclosure, the feedback generated is the acknowledgement of having received a valid command. Invalid commands generate feedback indicating an error occurred.

Example: [ERC01]

7.5.1 Description of Commands

Each command consists of two parts: Function and Card.

[Function , Card]

Example: [VERC03]

VER = Function

C03 = Card ID

The card ID is a unique identifier. It is equal to the enclosure slot number.

7.6 Commands

See the Command Summary (section 7.7) for a one-line description of each command. The commands in this section are organized as follows:

- System Commands
- Card Commands

System Commands

System commands provide information about the front panel, control feedback, and provide access to overall enclosure status and details.

1. [VER]

This command displays the current version of the firmware.

Command Format: [VER]

2. [RES]

The [RES] command resets the enclosure. The controller and all cards in the enclosure will be reset to their power up settings.

3. [?]

This command displays general information about the MultiTasker and the cards installed.

Command Format: [?]

Example:

Send [?] and receive the following feedback:

```
[(MT302-121)(MT103-121C02)(MT103-122C03)
(MT103-123C04)]
```

MT302-121 = Panel model number

MT305-804C04 = An MT305-804 is in slot 4

MT312-104C06 = An MT312-104 is in slot 6

MT306-101C08 = An MT306-101 is in slot 8

Card Commands

Card commands provide information about individual cards. All cards share some basic commands like version, model number, etc. The commands listed in this section include common commands that are shared by different cards and may not apply to all cards. Commands specific to individual cards are available in the card's user guide.

4. [?C]

This command displays general information about a card and its status.

Command Format: [?Cn]

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

Example:

The MT305-804 switcher card in slot 4 is on, input 1 is connected to outputs 1, 2, and 3 with input 2 connected to output 4. There are signals present on inputs 1 through 4 only. Send the command [?C2] to receive the following status:

```
[(MT305-804C04)(VR690-0424-001C04)(MA1112C04)(
SI11110000C04)]
```

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.

MT305-804 = Card model number

VR690-0424-001 = Firmware version

MA1112 = Matrix output connections 1-4

SI11110000 = Signal detect (1=yes)

5. [VERCnn]

This command displays the card firmware version.

Command Format: [VERCnn]

Cnn = Card ID (n = # from 01 to max slots)

Example:

Request the firmware version of the MT312-104 switcher card in slot 6 by sending [VERC06] and receive feedback similar to the following:

```
[690-0425-001C06]
```

6. [IxOyCnn]

This command connects an input to one or all outputs on a matrix switcher card.

Command Format: [IxOyCnn]

nn = Card ID (nn = # from 01 to max slots)

x = Input (x = Input no.)

y = Output (y = Output no., * = all outputs)

Example:

Connect Input 1 to Output 2 of the MT305-804 card in slot 4 by sending [11O2C04]. If the command is successful, the following feedback is received:

[]

7.7 Summary of Commands

System Commands

- 1) [VER] Display firmware version
- 2) [RES] Reset the system
- 3) [?] Display system status

Card Commands

- 4) [?C] Display card status
- 5) [VER] Display firmware version
- 6) [IxOy] Connect input to output

7.8 Control Software

AVSnap control software is available from the ALTINEX website at www.altinex.com in the Software section.

8. Troubleshooting Guide

We have carefully tested and have found no problems in the supplied MT302-121; however, we would like to offer suggestions for the following:

MultiTasker Enclosure	
Symptom	Resolution
Enclosure Not Working	<ol style="list-style-type: none">1. Make sure the enclosure is plugged into a working AC outlet.2. The input power voltage is incorrect. Make sure the AC input power is within the range of 85-264VAC. If the enclosure still has a problem, call Altinex at (714) 990-2300.
Card Is Not Working	<ol style="list-style-type: none">1. The card cage slot has a problem. If the slot was damaged, the card may work in other slots. If other slots work, the problem is the card cage slot. The card cage may require service. Call Altinex at (714) 990-2300.2. Take any other known good card and plug it into the slot in question. If the card works, the original card may be the source of the problem. Call Altinex at (714) 990-2300.3. The input power voltage is incorrect. Make sure that the input power range is within 85-264 VAC and also make sure that the power is connected to the input power connector. If there is still a problem, call Altinex at 714 990-2300.
System Failure	Please call the Altinex Customer Service Department at (714) 990-2300 to have the unit repaired.