

ASCII Terminal Emulator

Installation and Operation Manual

Model: MC5-TE

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FCC Information

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 in a commercial installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential environment may cause harmful interference.

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Important Installation Note:

A DB25 (M/F) null modem cable is included to connect the MC5-TE to your ASCII device. See table 1 for pin out details.



Introduction

Inova's MC5-TE is designed to emulate an "ASCII terminal", converting RS232 serial ASCII terminal data to "PS/2 keyboard and VGA video" or "Sun keyboard and Sun video". This conversion allows any devices that can be accessed by an ASCII terminal to be operated using Magi™ System, PC or SUN consoles. Additionally, these devices can now be accessed up to 1000 feet away utilizing the Magi™ System.

Major Features

The MC5-TE is designed with the following unique features:

- Maintains 8 pages of data in a circular buffer
- *Buffer Edit Mode*—edit, copy (mark), and re-send to computer functions
- *On-Line Mode*—operate ASCII device as if attached to a text terminal
- 12 programmable keys for frequently performed character string commands
- Use PS/2 console—PS/2 keyboard and VGA monitor (see Figure 1)—or Sun Console—Sun keyboard and composite sync Sun monitor (MC5-TE auto sensing)
- Incorporates an Inova Cat5 Xtender transmitter port that enables access up to 1000 feet away using a Magi™ Xtender Remote Console Module (MC5-RC)
- Use with the Magi™ System for convenient access to multiple ASCII devices and LAN/WAN components. (See Figure 2 and Figure 3.)

Installation

Follow these steps to install the MC5-TE.

1. If necessary boot your ASCII device and configure a serial port to be VT100, 9600-baud rate, no parity, 8-bit data, 1 stop bit.
2. Using the DB25 (M/F) null modem cable included (see table 1) connect the ASCII device serial port or the MREM8S serial port to the DB25 connector on the MC5-TE.

MC5-TE DB25	Your Device
Pin 2 TxD	RxD
Pin 3 RxD	TxD
Pin 7 GND	GND

Table 1 Null Modem Cable Connections

3. Plug the 6VDC power supply into the MC5-TE.
4. Plug a PS/2 keyboard into the miniDin-6 connector and a VGA monitor to the HD15 connector on the MC5-TE.

Or

Plug a Sun keyboard into the miniDin-8 connector and a composite sync Sun monitor into the HD15 connector on the MC5-TE. You may need to adapt the HD15 to 13W3 with a **1396C** adapter that converts HD15(M) to 13W3(F).

Note: If the MC5-TE is being used with the Magi™ System, connect the MCD-xxx cable from the Magi™ System to the MC5-TE keyboard, monitor, and mouse ports. Select the channel where the MC5-TE is connected to access the ASCII device via the Magi™ System.

5. You will see a login prompt on the monitor.
6. F1 to F8 keys have been programmed on the MC5-TE to access 1 to 8 ports on the MREM8S respectively.

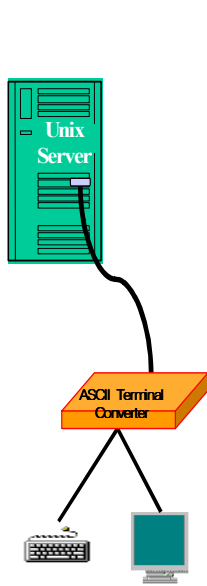


Figure 1 PS/2 Keyboard/Monitor Terminal

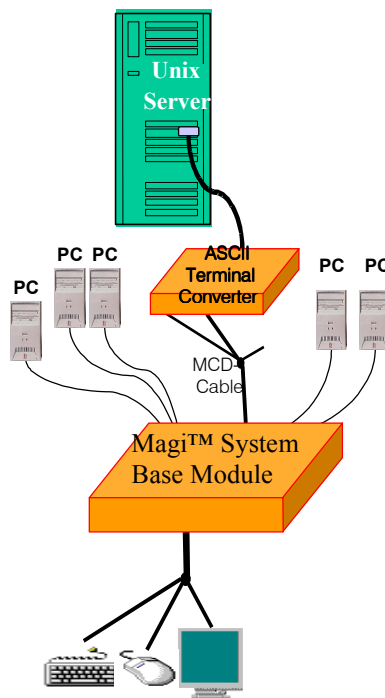


Figure 2 MC5-TE with a KVM Switch

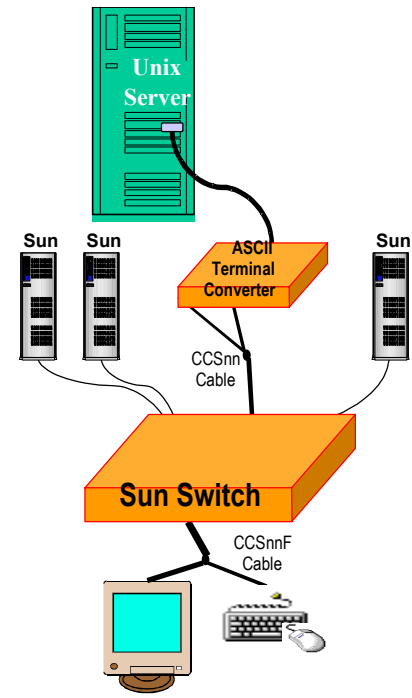


Figure 3 MC5-TE with a Sun KVM switch

Remote Access up to 1000' away

The MC5-TE has a Inova Cat5 transmitter port (RJ45) that enables you to operate a keyboard and monitor up to 1000' away using standard Category 5 Enhanced UTP cable. An Inova Xtender Remote Console Module, model MC5-RC, is required. Follow the installation procedure provided with the MC5-RC for complete installation instructions.

Operating an ASCII device with the MC5-TE Terminal Converter

This section describes how to access and operate an ASCII based device with a PS/2 or Sun console (keyboard and monitor) using the MC5-TE.

Screen Lay Out

The MC5-TE produces 8 colors, 800x600-resolution video, which can accommodate 32 lines of 80 text characters. A typical ASCII terminal uses 24 lines, so the MC5-TE uses the 8 extra lines to provide system status and help information. These 8 lines are located on the top four and the bottom four lines of the screen. (See Figure 4.)

- Line 1, top window: MC5-TE firmware version is displayed to the right
- Line 3, top window: Cursor position and buffer page number is displayed to the left; terminal type and baud rate are displayed to the right
- Line 4, top window: Communication status is displayed at the center. Status can be one of the following:
 - **On Line**: Communicating with computer. The terminal screen area displays the interactions with computer.
 - **Help**: <Alt-F1> is pressed. MC5-TE Help screen is displayed.
 - **Set Up**: <Alt-F2> or <Alt-F3> is pressed. You are in set up mode.
 - **Buffer Edit**: <Alt-F4> is pressed. You are in buffer review/edit mode.
- Line 4, top window: MC5-TE Access indicator on the right. It indicates one of the following:
 - **LOC**: Local port is active, either PS/2 keyboard or Sun keyboard
 - **RMT**: Remote port (RJ45) is active
 - **NO**: No port is active.
- The 4 lines in bottom window display command keys specific to the current screen.

On-line Mode

When the MC5-TE is operated in On-line mode (See Figure 4), the screen area displays your interactions with the ASCII device. This mode of operation is similar to using an ASCII terminal to access and operate an ASCII device.

Simultaneously, the output data stream from the device is stored in an 8-page circular buffer. This feature enables you to access and operate an ASCII device and review the historical data stream on demand. The buffer is a circular 8-page buffer, therefore it will retain the most recent 8 pages of the data from the device.

You can program any of the 12 function keys to contain your most often use data stream commands. (See Set Up Operations.) Pressing any of these keys when in on-line mode will send that data stream command to the device. This convenient feature is ideal for frequently repeated commands.

During the on-line session, you can enter the following keys to control the communication with the ASCII device or access the MC5-TE help and set up screens:

```

1234567890123456789012345678901234567890123456789012345678901234567890
1  Raritan Computer, Inc. ©Copyright 1999 V1.05
2  ASCII Terminal Converter, Model: AUATC
3  Line 03 Position 10 Page 8 VT100 9600 Baud
4  Status: On Line LOC
5  %
6  Login: Huimin
7  Password:
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

```

Terminal Screen Area
(24 lines x 80 characters)
Black Background

```

<Alt-F1> = Display Help Menu Screen <Alt-F2> = Setup serial Communication
<Alt-F3> = Set Up Programmable Keys <Alt-F4> = Review/Edit Buffer
<Ctrl-Break> = Reset Serial Communication and AUATC
<Ctrl-S>/<Ctrl-Q> = Stop/Resume output from Computer

```

Figure 4 On Line Session

- <Ctrl-Break>: Reset the serial communication with the computer and reset MC5-TE
- <Ctrl-S>: Stop computer from sending any data; all output data will be queued in the computer
- <Ctrl-Q>: Resume computer to send data
- <Alt-F1>: Display Help Menu Screen (See Figure 5)
- <Alt-F2>: Setup serial Communication
- <Alt-F3>: Set Up Programmable Keys
- <Alt-F4>: Review/Edit Buffer
- F1: Access serial port 1 on the MREM8S. The following code allows ASCII communication with the MREM8S and activates serial port 1 on the MREM8S. (Ctrl-PA)

-
- F2: Access serial port 2 on the MREM8S. The following code allows ASCII communication with the MREM8S and activates serial port 2 on the MREM8S. (Ctrl-PB)
 - F3: Access serial port 3 on the MREM8S. The following code allows ASCII communication with the MREM8S and activates serial port 3 on the MREM8S. (Ctrl-PD)
 - F4: Access serial port 4 on the MREM8S. The following code allows ASCII communication with the MREM8S and activates serial port 4 on the MREM8S. (Ctrl-PH)
 - F5: Access serial port 5 on the MREM8S. The following code allows ASCII communication with the MREM8S and activates serial port 5 on the MREM8S. (Ctrl-PM)
 - F6: Access serial port 6 on the MREM8S. The following code allows ASCII communication with the MREM8S and activates serial port 6 on the MREM8S. (Ctrl-PN)
 - F7: Access serial port 7 on the MREM8S. The following code allows ASCII communication with the MREM8S and activates serial port 7 on the MREM8S. (Ctrl-PW)
 - F8: Access serial port 8 on the MREM8S. The following code allows ASCII communication with the MREM8S and activates serial port 8 on the MREM8S. (Ctrl-PY)
 - F9: Creates a **Broadcast** mode to all the ports on the MREM8S. The following code allows ASCII communication with the MREM8S and activates all serial ports on the MREM8S. (Ctrl-PZ). In this mode, you can send the same ASCII command to all the serial devices connected to the MREM8.
 - F10: Disconnect all the ports on the MREM8S. The following code allows ASCII communication with the MREM8S and activates serial port 8 on the MREM8S. (Ctrl-P@)

* Ctrl Key is shown in the MC5-TE as “**^**”

Buffer Edit Mode

The MC5-TE stores the most recent 8 pages of data from the ASCII device in a circular buffer. You can edit the data in the buffer. See Figure 5.

To operate the MC5-TE in Edit Buffer Mode, press the <Alt-F4>. The MC5-TE will switch from On-Line Mode to the Buffer Edit Mode. See Figure 6. Now you can view the contents of the buffer using <PageUp>, <PageDown>, <Home>, <End>, and use the arrow keys to position the viewing cursor.

```

1234567890123456789012345678901234567890123456789012345678901234567890
1      Raritan Computer, Inc. ©Copyright 1999      V1.05
2      ASCII Terminal Converter, Model: AUATC
3 Line 03 Position 10 Page 8      VT100 9600 Baud
4      Status: Help      LOC
5
6      ASCII Terminal Converter
7      Help Screen
8
9      On Line Commands
10     <Ctrl-Break> = Reset Serial Communication and AUATC
11     <Ctrl-S>/<Ctrl-Q> = Stop/Resume output from Computer
12
13     Set Up commands
14     <Alt-F1>      = Display Help Menu
15     <Alt-F2>      = Setup Screen
16     <Alt-F3>      = Set up Programmable keys
17     <Alt-F4>      = Review/Edit Buffer
18     <Esc>         = Exit
19
20     Buffer edit
21     <Home>/<End>  = Go To First Page/Last page
22     <PageDown>/<PageUp>= Go To Next Page/Previous Page
23     <↑><↓><←><→> = Move Cursor
24     <Insert>      = Toggle insert mode
25     <Delete>/<Del> = Erase a character in position
26     <Back Space> = Erase a character on the left
27     <F6>          = Begin Mark
28     <F7>          = Send "Marked" buffer to computer, and return On Line
29     <F10>         = Clear Buffers, and return on line
30     <Esc>         = Exit, return to On Line
31
32 <Alt-F1> = Display Help Menu Screen  <Alt-F2> = Setup Screen
33 <Alt-F3> = Set Up Programmable Keys  <Alt-F4> = Review/Edit Buffer
34 <Ctrl-Break> = Reset Serial Communication and AUATC

```

Figure 5 MC5-TE Help Screen

```

1234567890123456789012345678901234567890123456789012345678901234567890
1      Raritan Computer, Inc. ©Copyright 1999      V1.05
2      ASCII Terminal Converter, Model: AUATC
3 Line 03 Position 10 Page 8      VT100 9600 Baud
4      Status: Buffer Edit      LOC
5
6 $ls -l
7 total 25
8 -rwxrwxrwx 1 0 0 189024 Oct 25 1993 tklaunch.exe
9 -rwxrwxrwx 1 0 0 14598 Sep 22 1993 touch.exe
10 -rwxrwxrwx 1 0 0 14078 Sep 22 1993 tr.exe
11 -rwxrwxrwx 1 0 0 10722 Sep 22 1993 tsort.exe
12 -rwxrwxrwx 1 0 0 7420 Sep 22 1993 tty.exe
13 -rwxrwxrwx 1 0 0 9228 Sep 22 1993 uname.exe
14 -rwxrwxrwx 1 0 0 29074 Sep 28 1993 uncompress.exe
15 -rwxrwxrwx 1 0 0 11238 Sep 22 1993 unexpand.exe
16 -rwxrwxrwx 1 0 0 11318 Sep 22 1993 uniq.exe
17 -rwxrwxrwx 1 0 0 13288 Sep 22 1993 unpack.exe
18 -rwxrwxrwx 1 0 0 11518 Sep 22 1993 unstrip.exe
19 -rwxrwxrwx 1 0 0 12670 Sep 22 1993 udecode.exe
20 -rwxrwxrwx 1 0 0 10342 Sep 22 1993 uencode.exe
21 -rwxrwxrwx 1 0 0 188928 Oct 21 1993 vdiff.exe
22 -rwxrwxrwx 1 0 0 76358 Oct 7 1993 vi.exe
23 -rwxrwxrwx 1 0 0 240752 Oct 22 1993 viw.exe
24 -rwxrwxrwx 1 0 0 493971 Oct 22 1993 viw.hlp
25 -rwxrwxrwx 1 0 0 766 Sep 27 1993 viwdoc.ico
26 -rwxrwxrwx 1 0 0 5632 Aug 19 1993 viwf.fon
27 -rwxrwxrwx 1 0 0 10598 Sep 22 1993 wc.exe
28 -rwxrwxrwx 1 0 0 9758 Sep 22 1993 which.exe
29
30 <Home>/<End> = First/Last page  <PageDown>/<PageUp> = Next/Previous Page
31 <↑><↓><←><→> = Move Cursor  <Insert> = Toggle insert mode
32 <Delete> = Erase a character  <Back Space> = Erase a character on the left
33 <F6>/<F7> = Mark Begin/End <F8> = Send <F10> = Clear Buffer <Esc> = Exit

```

Figure 6 Buffer Edit Screen

Set-Up Operations

Pressing the <Alt-F2> key will enable you to set up the serial communication parameters and the selection of video output. See Figure 7. You can change the serial communication baud rate and transmission format to meet your device need.

```
1234567890123456789012345678901234567890123456789012345678901234567890
1      Raritan Computer, Inc. ©Copyright 1999          V1.05
2      ASCII Terminal Converter, Model: AUATC
3      Line 03 Position 10 Page 8                      VT100 9600 Baud
4      ----- Status: Set Up -----LOC-----
5
6      ASCII Terminal Converter
7      Setup Screen
8
9      Baud Rate   : 9600
10     Parity      : None
11     Data Bit    : 8
12     Stop Bit    : 1
13
14     Terminal Type : VT100
15
16     Video Output:
17     PS/2 Keyboard: VGA Only
18     Sun Keyboard: Sun Composite
19
20     Set up: Default
21
22     Use <Tab>/<Shift-Tab> to go to a field to edit
23     Use <↑> or <↓> to change parameter in a field
24
25     <Esc> return to On Line
26
27
28
29
30     <Alt-F1> = Display Help Menu Screen  <Alt-F2> = Setup Screen
31     <Alt-F3> = Set Up Programmable Keys  <Alt-F4> = Review/Edit Buffer
32     <Ctrl-Break> = Reset Serial Communication and AUATC
33
34
```

Figure 7 Set Up Communication

Also, it allows you to optionally use a VGA monitor in conjunction with a Sun keyboard, which typically requires a Sun composite sync monitor.

To select a VGA video output with a Sun keyboard, first you should use a PS/2 keyboard and a VGA monitor to access MC5-TE. Press <Alt-A2> to get into set up screen and change the video option for Sun keyboard to VGA. Then you can replace the PS/2 keyboard with a Sun keyboard.

Pressing the <Alt-F3> will enable you to program the 12 function keys. See Figure 8. Programmable keys allow you to store often used data streams or commands, and send them to the devices during on-line mode with simply pressing a preprogrammed function key.

```

12345678901234567890123456789012345678901234567890123456789012345678901234567890
1  Raritan Computer, Inc. ©Copyright 1999                               V1.05
2  ASCII Terminal Converter, Model: AUATC
3  Line 03 Position 10 Page 8 VT100 9600 Baud
4  Status: Set Up LOC
5
6  ASCII Terminal Converter
7  Set Up Programmable Keys
8
9  F1      = ^D
10 F2      = <default>
11 F3      = ^U
12 F4      = <default>
13 F5      = <default>
14 F6      = <default>
15 F7      = <default>
16 F8      = <default>
17 F9      = <default>
18 F10     = <default>
19 F11     = <default>
20 F12     = This is my name.
21
22 <Tab>/<Shift><Tab> to a field to edit; max. of 16 characters
23 Use <Ctrl-V> to enter special character; e.g., <Ctrl-V>+<Esc>,
24 <CTRL-V>+<CTRL-C>, <CTRL-V>+<CTRL-M> or <CTRL-V>+<Enter> for CR key
25 <F11>/<F12> = Load/Save programmable key
26 <Esc> return to On Line
27
28 <Alt-F1> = Display Help Menu Screen  <Alt-F2> = Setup serial Communication
29 <Alt-F3> = Set Up Programmable Keys  <Alt-F4> = Review/Edit Buffer
30 <Ctrl-Break> = Reset Serial Communication and AUATC
31
32

```

Figure 8 Set Up Programmable Keys

FAQ's

1. I do not get a device prompt.

- Check all connectors and make sure the 6V DC power supply is connected securely.
- If you have the MC5-TE screen displayed with top and bottom help windows, make sure the status indicates "On Line". If not press <Esc> to return to On-line.
- Make sure you have configured the device serial port to match what is being displayed on the serial communication set up screen. Press <Alt-F2> to show the screen.
- Make sure you are using a RS232 null-modem cable.
- You device may not be powered.

2. No video display or video is scrambled.

- Make sure your monitor can handle a video resolution of 800x600 with 60 Hz refresh rate.
- If you are using Sun keyboard, by default the HD15 video port will generate composite sync signal for Sun monitor. You may need a 1397 adapter (HD15 to 13W3) to connect a Sun monitor to the HD15 video port on the MC5-TE. Or you can go to the set up screen (press <Alt-F2>) to change video output to be VGA video with a Sun keyboard and use a VGA monitor.