Paragon and Dominion KX II Serial Device Computer Interface Modules

P2CIM-SER/P2CIM-SER-EU

User Guide

Release 2.62

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For assistance in the North or South America, please contact the Raritan Technical Support Team by telephone (732) 764-8886, by fax (732) 764-8887, or by e-mail tech@raritan.com

Ask for Technical Support – Monday through Friday, 8:00 a.m. to 8:00 p.m., Eastern.

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Power Safety Guidelines

To avoid potentially fatal shock hazard and possible damage to Raritan equipment:

- Do not use a 2-wire power cord in any product configuration.
- Test AC outlets at your computer and monitor for proper polarity and grounding.
- Use only with grounded outlets at both the computer and monitor. When using a backup UPS, power the computer, monitor and appliance off the supply.

Rack Mount Safety Guidelines

In Raritan products which require Rack Mounting, please follow these precautions:

- Operation temperature in a closed rack environment may be greater than room temperature. Do not exceed the rated maximum ambient temperature of the appliances.
- Ensure sufficient airflow through the rack environment.
- Mount equipment in the rack carefully to avoid uneven mechanical loading.
- Connect equipment to the supply circuit carefully to avoid overloading circuits.
- Ground all equipment properly, especially supply connections, such as power strips (other than direct connections), to the branch circuit.

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Chapter 1: Introduction

Congratulations on purchasing a Raritan P2CIM-SER or P2CIM-SER-EU terminal converter. This User Guide explains how to use these converters to access and operate an ASCII serial device through a Raritan Dominion KX II or Paragon KVM switch.

Note: The P2CIM-SER and P2CIM-SER-EU are functionally identical. The only difference between the two is that the P2CIM-SER-EU supports a wider variety of non-English language keyboards and character sets. Refer to "Language Keyboards" below for details.

Overview

Both the P2CIM-SER and P2CIM-SER-EU allow you to administer an ASCII serial device that is connected to a Dominion KX II, Paragon II or MasterConsole CAT (MCCAT) KVM switch. They do this by emulating an ASCII terminal and converting the serial data from the ASCII device into PS/2 keyboard and VGA video (800x600x60) signals.

Installing either converter is quite easy. All you have to do is connect the converter to a serial port on an ASCII device using its serial DB9 connector, and then to a KVM switch using a standard Category 5e UTP cable. You also have to connect its USB connector to a powered USB port, or to a separately available Raritan PWR-SER-4 power adapter, to obtain power.

One this is done, you can use the KVM switch's monitor and keyboard to access and operate the ASCII device. You can now administer the device through a Paragon II or Dominion KX II switch.

Note: The PWR-SER-4 power adapter allows you to connect up to four devices to a standard power outlet by means of a USB connector. It must be ordered separately from Raritan. Refer to Appendix A for details.

Product Photos

Figure 1 P2CIM-SER/P2CIM-SER-EU

Product Features

Both the P2CIM-SER and P2CIM-SER-EU provide the features listed below:

- Interoperates with an ASCII device as if the device were attached to a text terminal.
- Generates video 800x600x60 with PS/2 keyboard
- Includes an 8-page circular buffer containing the last 8 pages of data from the ASCII device. Administrators can view, copy and edit the data in the buffer.
- Provides 12 programmable function keys for ease of use. Administrators can program the keys to send frequently-used character strings or commands to an ASCII device with one keystroke.

- Works with Raritan Paragon II, Dominion KX II, and MCCAT KVM switches for convenient access to multiple ASCII devices and LAN/WAN components.

Language Keyboards

The P2CIM-SER supports ISO-646 with these language keyboards:

- USA
- French
- German
- UK
- Denmark I
- Swedish
- Italian
- Spanish I
- Japanese English
- Norway
- Denmark II
- Spanish II
- Latino America
- Korean English
- Legal

The P2CIM-SER-EU is the same as the P2CIM-SER except it supports ISO 8859-1 with these language keyboards:

- Danish
- Dutch
- English (USA)
- English (U.K.)
- Finnish (same as Sweden)
- French (Belgian)
- French (Canadian)
- French (France)
- French (Swiss)
- German (Germany)
- German (Swiss)
- Italian
- Norwegian
- Portuguese
- Portuguese (Brasil)
- Spanish (Spain)
- Spanish (America)
- Swedish

The P2CIM-SER-EU can also display the different language characters that are specified by ISO8859-1.

Package Contents

(1) P2CIM-SER or P2CIM-SER-EU

Chapter 2: Installation

This chapter explains how to install a P2CIM-SER or P2CIM-SER-EU terminal converter. This entails connecting the converter to an ASCII device, a power source, and a KVM switch.

Before You Begin

Before beginning the installation, connect the P2CIM-SER/P2CIM-SER-EU's USB connector to a powered USB port, or connect it to a PWR-SER-4 to obtain power.

Make sure the serial port on the ASCII device you will be connecting to the converter is properly configured. The port should be set to the following parameters:

* Baud rate = 9600 bps
* Parity = None
* Data bits = 8
* Stop bits = 1

Note: The maximum baud rate permitted is 19200 bps.

Connecting the Converter to an ASCII Device

To connect the converter to an ASCII device:

1. Remove the P2CIM-SER or P2CIM-SER-EU from the box in which it was shipped.
2. Take the DB9 connector on the P2CIM-SER or P2CIM-SER-EU and attach it directly to a serial port on the ASCII device.

Figure 2 P2CIM-SER/P2CIM-SER-EU Connectors

Note: If the ASCII device consists of an RJ45 connection for console management, you may connect the P2CIM-SER or P2CIM-SER-EU by utilizing the following Raritan components:
➢ RJ45 (female) to DB9 (male) serial adapter -- part number: ASCSDB9M
➢ 1 serial rollover Category 5 adapter cable, RJ45 (male) to RJ45 (female) -- part number: CRLVR-1

Connecting the Converter to a Power Source

A P2CIM-SER or P2CIM-SER-EU must be connected to a power source by means of its USB connector. You can insert the USB connector into a USB port on the ASCII device, another device, or a Raritan PWR-SER-4 power adapter.

The PWR-SER-4 must be ordered separately. If you are using one, refer to Appendix A for installation instructions.

Connecting the Converter to a KVM Switch

To connect the converter to a Raritan Dominion KX II or Paragon KVM switch:

1. Take a standard Category 5e UTP cable and connect one end to the RJ45 connector on the P2CIM-SER or P2CIM-SER-EU.
2. Connect the other end of the cable to a channel port on the KVM switch.

Installation is now complete. You can now access and operate the ASCII device using the switch's monitor and keyboard.

Note: The maximum cable length of the converter varies depending on the type of the KVM switch being connected. See the user guide of the specific KVM switch for the cable length limitation. These user guides are available on Raritan's Product Documentatin web page:
http://www.raritan.com/support/productdocumentation.

Chapter 3: Operation

This chapter explains how to administer an ASCII device connected to a Raritan Dominion KX II or Paragon KVM switch by means of a P2CIM-SER or P2CIM-SER-EU terminal converter. All the operations described in this chapter can be performed on the switch's monitor and keyboard.

Working in On-Line Mode

Once you access the ASCII device, you are in On-Line Mode. When the system is in On-Line Mode, it operates much like a standard ASCII terminal. It allows you to access and control the ASCII device, and it displays the interaction with the device on your monitor.

Video Display

The video display is an eight color, 800x600 resolution screen consisting of 32 lines of text (80 characters per line). A typical ASCII terminal uses 24 lines, so the P2CIM-SER or P2CIM-SER-EU uses the eight extra lines to provide system status and help information. These eight lines are located on the top four and the bottom four lines of the screen.
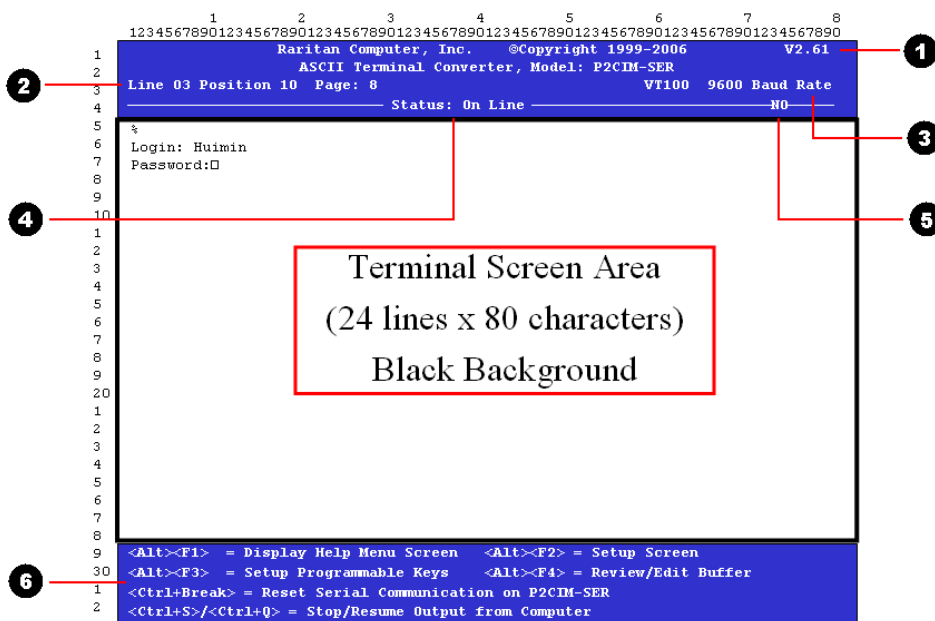
Figure 3 Video Display

Display Components

The following describes the components of the eight lines at the top and bottom of the display:

1   Firmware version

2   Cursor position and buffer page number

3   Terminal type and baud rate

4   Communications status. The status can be one of the following:

- **On Line**   Communicating with an ASCII device. The terminal screen area displays the interactions with the ASCII device.
- **Help**   Help screen displayed (Pressing **Alt**+**F1** displays the Help screen.)
- **Set Up**   Setup screen displayed. (Pressing **Alt**+**F2** or **Alt**+**F3** enters set-up mode.)
- **Buffer Edit**   Buffer displayed. (Pressing **Alt**+**F4** enters buffer review/edit mode.)

5 Access indicator. It indicates one of the following:

- **RMT** Remote port (RJ45) is active.
- **NO** No port is active.

6 Command keys that can be used with the screen currently displayed

Functions Keys

When in On-Line Mode, you can use any of the functions keys shown below:

PRESS	TO…
Ctrl+Break	Reset the serial communication with the ASCII device and reset the P2CIM-SER or P2CIM-SER-EU. *Note: This function may only work with Sun workstations.*
Ctrl+S	Stop the ASCII device from sending data. All output data will be queued in the device.
Ctrl+Q	Order the ASCII device to resume sending data.
Alt+F1	Display the Help screen.
Alt-F2	Set the serial communications parameters.
Alt+F3	Program the programmable function keys.
Alt+F4	View and edit the buffer.

Configuring the Converter

You can reset the serial communications parameters on a P2CIM-SER or P2CIM-SER-EU.

The system also provides 12 programmable functions keys that allow you to store frequently-used character strings or commands. By pressing these keys, you can send the data or commands directly to an ASCII device with one keystroke. This is ideal for frequently repeated commands.

Setting the Communications Parameters

To set the serial communications parameters on a P2CIM-SER or P2CIM-SER-EU:

1. Press **Alt+F2**. The Setup Screen appears.
2. You can reset the baud rate, parity, data bits, stop bits or terminal type. To do this:
   A. Use the **Tab** and **Shift**+**Tab** keys to move the cursor to a parameter you want to change.
   B. Use the ↑ and ↓ keys to scroll through the available parameter settings until you come to the one you want.
   C. Repeat Steps A and B until all necessary parameters have been reset.
3. When you are finished, press **ESC** to return to On-Line Mode.

Figure 4 Setup Screen

Programming the Function Keys

To program the function keys:

1. **Press Alt+F3**. The Setup Programmable Keys screen appears. This screen contains entries for each of the 12 programmable function keys.

Figure 5 Set Up Programmable Keys Screen

2. Use the **Tab** and **Shift**+**Tab** keys to move the cursor to a function key.
3. Type a maximum of 16 characters for the function key. To type special characters, use **Ctrl**+**V**. For example, to enter a carriage return (CR), type **Ctrl**+**V** + **Enter**.
4. Repeat Steps 2 and 3 until you have programmed all necessary keys.
5. Press **F11/F12** to load and save the programmable keys.
6. Press **Esc** to return to On-Line Mode.

Viewing and Editing the Buffer

The P2CIM-SER or P2CIM-SER-EU stores the most recent eight pages of data from an ASCII device in a circular buffer. This enables you to access and operate the device, and also review the historical data stream on demand. The buffer is a circular eight-page buffer, which means it retains the most recent eight pages of the data from the device.

To view and edit the data in the buffer:

1. Press **Alt**+**F4**. The P2CIM-SER or P2CIM-SER-EU switches from On-Line Mode to Buffer Edit Mode and displays the Buffer Edit screen.

```
        1         2         3         4         5         6         7         8
 1234567890123456789012345678901234567890123456789012345678901234567890
 1            Raritan Computer, Inc.    @Copyright 1999-2006         V2.61
 2            ASCII Terminal Converter, Model: P2CIM-SER
 3 Line 03 Position 10  Page: 8                    VT100   9600 Baud Rate
 4 ───────────────────── Status: Buffer Edit ─────────────NO───────
 5 $ls -l
 6 Total 25
 7 -rwxrwxrwx  1  0       0          189024 Oct 25 1993   tklaunch.exe
 8 -rwxrwxrwx  1  0       0           14598 Oct 25 1993   touch.exe
 9 -rwxrwxrwx  1  0       0           14708 Oct 21 1993   tr.exe
10 -rwxrwxrwx  1  0       0           10722 Oct 25 1993   tsort.exe
 1 -rwxrwxrwx  1  0       0            7420 Oct 25 1993   tty.exe
 2 -rwxrwxrwx  1  0       0            9228 Oct 25 1993   uname.exe
 3 -rwxrwxrwx  1  0       0           29074 Oct 25 1993   uncompre.exe
 4 -rwxrwxrwx  1  0       0           11238 Oct 25 1993   unexpand.exe
 5 -rwxrwxrwx  1  0       0           11318 Oct 25 1993   uniq.exe
 6 -rwxrwxrwx  1  0       0           13288 Oct 25 1993   unpack.exe
 7 -rwxrwxrwx  1  0       0           11518 Oct 25 1993   unstrip.exe
 8 -rwxrwxrwx  1  0       0           12670 Oct 25 1993   undecode.exe
 9 -rwxrwxrwx  1  0       0           10324 Oct  7 1993   unencode.exe
20 -rwxrwxrwx  1  0       0          188928 Oct 25 1993   vdiff.exe
 1 -rwxrwxrwx  1  0       0           76358 Oct 25 1993   vi.exe
 2 -rwxrwxrwx  1  0       0          245010 Oct 25 1993   viw.hlp
 3 -rwxrwxrwx  1  0       0          493971 Oct 25 1993   viwdoc.ico
 4 -rwxrwxrwx  1  0       0             766 Oct 22 1993   viwf.fon
 5 -rwxrwxrwx  1  0       0            5632 Oct 22 1993   wc.exe
 6 -rwxrwxrwx  1  0       0           10598 Oct 21 1993   which.exe
 7 -rwxrwxrwx  1  0       0            9769 Oct 21 1993   who.exe
 8
 9 <Alt><F1>  = Display Help Menu Screen    <Alt><F2> = Setup Screen
30 <Alt><F3>  = Setup Programmable Keys      <Alt><F4> = Review/Edit Buffer
 1 <Ctrl+Break> = Reset Serial Communication on P2CIM-SER
 2 <Ctrl+S>/<Ctrl+Q> = Stop/Resume Output from Computer
```

Figure 6 Buffer Edit Screen

2. Use the **Page Up**, **Page Down**, **Home**, **End**, ↑ and ↓ keys to view the contents of the buffer and position the cursor in the Buffer Edit screen.

Obtaining On-Line Help

You can obtain on-line help at any time during your session by pressing **Alt**+**F1**. This displays the Help screen, which lists the on-line, setup, and buffer edit commands.

```
                1         2         3         4         5         6         7         8
       12345678901234567890123456789012345678901234567890123456789012345678901234567890
 1                      Raritan Computer, Inc.    ©Copyright 1999-2006          V2.61
 2                      ASCII Terminal Converter, Model: P2CIM-SER
 3     Line 03 Position 10  Page: 8                               VT100   9600 Baud Rate
 4     ──────────────────────────── Status: Help  ───────────────────────NO───
 5
 6                            ASCII Terminal Converter
 7                                  Help Screen
 8       On Line commands:
 9            <Ctrl+Break>   =  Reset Serial Communication on P2CIM-SER
10            <Ctrl+S>/<Ctrl+Q> = Stop/Resume Output from Computer
 1       Set Up Commands:
 2            <Alt><F1>      =  Display Help Menu
 3            <Alt><F2>      =  Setup Screen
 4            <Alt><F3>      =  Setup Programmable keys
 5            <Alt><F4>      =  Review/Edit Buffer
 6       Buffer edit
 7            <Home>/<End>   =  Go To First Page/Last Page
 8            <PageDown>/<PageUp>= Go To Next Page/Previous Page
 9            <↑><↓><←><→> =  Move Cursor
20            <Insert>       =  Toggle insert mode
 1            <Delete>/<Del>=  Erase a character in position
 2            <Back Space>   =  Erase a character on the left
 3            <F6>           =  Begin Mark
 4            <F7>           =  Send "Marked" Buffer to Computer, and Return to On Line
 5            <F10>          =  Clear Buffers, and return to on line
 6            <Esc>          =  Exit, return to On Line
 7
 8
 9     <Alt><F1>  = Display Help Menu Screen    <Alt><F2> = Setup Screen
30     <Alt><F3>  = Setup Programmable Keys     <Alt><F4> = Review/Edit Buffer
 1     <Ctrl+Break> = Reset Serial Communication on P2CIM-SER
 2
```

Figure 7 Help Screen

Appendix A: PWR-SER-4 Power Adapter

The PWR-SER-4 power adapter enables you to connect up to four P2CIM-SER or P2CIM-SER-EUs to a standard power outlet using their USB connectors.
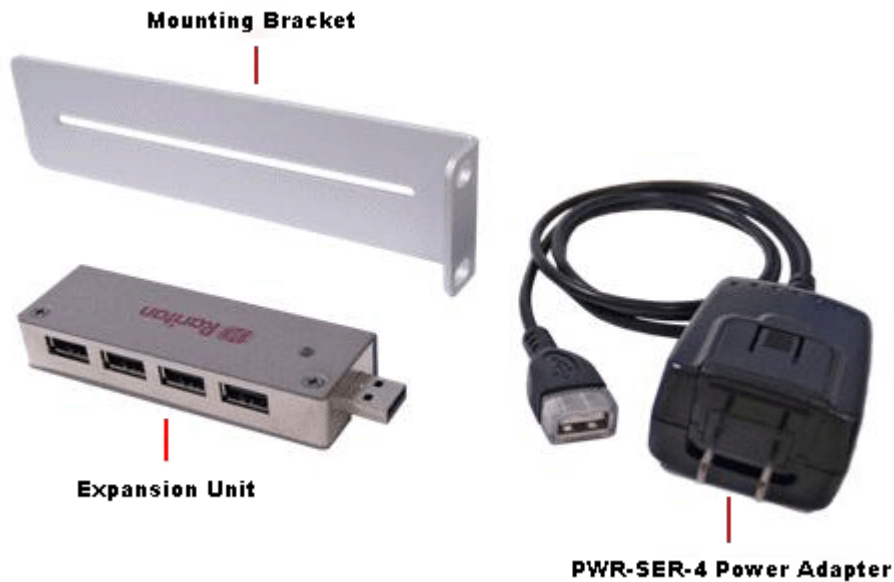
Product Photos

Figure 8 PWR-SER-4 Components

Package Contents

(1) PWR-SER-4 power adapter
(1) Expansion unit
(1) Mounting bracket

Product Installation

To connect one P2CIM-SER or P2CIM-SER-EU to the PWR-SER-4:
1. Insert a USB connector on the device into the USB port on the PWR-SER-4
2. Plug the PWR-SER-4 into a power outlet.

To connect up to four P2CIM-SER or P2CIM-SER-EUs to the PWR-SER-4:
1. Insert the USB connector on the expansion unit into the USB port on the PWR-SER-4.
2. Insert up to four USB connectors from the P2CIM-SER or P2CIM-SER-EU into the USB ports on the expansion unit.
3. Plug the PWR-SER-4 into a power outlet.

The PWR-SER-4 also comes with a bracket to mount the device on a rack.

Appendix B: Field Firmware Upgrade

This appendix explains how to perform a field firmware upgrade.

Perform the upgrade

1. This upgrade requires the use of Atmel's FLIP (Flexible In-system Programmer). Open a browser and point it at the Atmel Corporation website:
    http://www.atmel.com

    Once there, obtain a copy of their FLIP tool and install it on a PC.
2. Download the latest P2CIM-SER firmware release (xxx.hex) from Raritan's support website (http://www.raritan.com/support/firmwareupgrades/paragonII).
3. Set the slide switch on the P2CIM-SER/P2CIM-SER-EU to "P" status. The switch can be found to the right of the Raritan label on the underside of the device.
4. Connect the P2CIM-SER/P2CIM-SER-EU's DB9 connector to a serial port on the PC with the Flip software installed.
5. Connect the P2CIM-SER/P2CIM-SER-EU's USB connector to a USB port on another device or to a PWR-SER-4 power adaptor. This powers ON the P2CIM-SER/P2CIM-SER-EU.
6. Launch the Flip software, select **AT89C51RD2 chip**, and set communication to **RS-232**:
    -   Offset = 0000
    -   BLJB is checked
    -   BSB = 00
    -   EB = FF
    -   SBV = FC
    -   Device SSB = level 2
    -   RS-232 communication baud rate = 38400
7. Load the latest firmware for the P2CIM-SER/P2CIM-SER-EU.
8. Click **Run** to install the firmware on the P2CIM-SER/P2CIM-SER-EU.
9. After the installation is complete, power OFF the P2CIM-SER/P2CIM-SER-EU and disconnect it from the PC.
10. Set slide switch on P2CIM-SER/P2CIM-SER-EU to "S" status. The firmware upgrade is now complete.

Appendix C: Pin Definition of DB9 Connector

The female DB9 connector of the P2CIM-SER or P2CIM-SER-EU is a standard Data Communication Equipment (DCE) serial connector. The following table lists the signal of each pin. Please note that P2CIM-SER and P2CIM-SER-EU do NOT support RS-232 hardware flow control.

PIN NUMBER	SIGNAL
1	None
2	TxD
3	RxD
4	DSR
5	Ground
6	DTR
7	CTS
8	RTS
9	None

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➤ **U.S./Canada/Latin America**

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For CommandCenter NOC: Press 6, then Press 1
For CommandCenter Secure Gateway: Press 6, then Press 2
Fax: 732-764-8887
Email for CommandCenter NOC: tech-ccnoc@raritan.com
Email for all other products: tech@raritan.com

➤ **China**

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Phone: +86-10-88091890

Shanghai
Monday - Friday
9 a.m. - 6 p.m. local time
Phone: +86-21-5425-2499

GuangZhou
Monday - Friday
9 a.m. - 6 p.m. local time
Phone: +86-20-8755-5561

➤ **India**

Monday - Friday
9 a.m. - 6 p.m. local time
Phone: +91-124-410-7881

➤ **Japan**

Monday - Friday
9:30 a.m. - 5:30 p.m. local time
Phone: +81-3-3523-5994
Email: support.japan@raritan.com

➤ **Europe**

Europe
Monday - Friday
8:30 a.m. - 5 p.m. GMT+1 CET
Phone: +31-10-2844040
Email: tech.europe@raritan.com

United Kingdom
Monday - Friday
8:30 a.m. to 5 p.m. GMT+1 CET
Phone +44-20-7614-77-00
France
Monday - Friday
8:30 a.m. - 5 p.m. GMT+1 CET
Phone: +33-1-47-56-20-39

Germany
Monday - Friday
8:30 a.m. - 5 p.m. GMT+1 CET
Phone: +49-20-17-47-98-0

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Monday - Friday
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Phone: +82-2-5578730

➤ **Melbourne, Australia**

Monday - Friday
9:00 a.m. - 6 p.m. local time
Phone: +61-3-9866-6887

➤ **Taiwan**

Monday - Friday
9 a.m. - 6 p.m. GMT -5 Standard -4 Daylight
Phone: +886-2-8919-1333
Email: tech.rap@raritan.com