

Phantom MX IP Installation Guide



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1. Welcome

The Phantom MX IP system is produced by Minicom Advanced Systems Limited.

Technical precautions

This equipment generates radio frequency energy and if not installed in accordance with the manufacturer's instructions, may cause radio frequency interference.

This equipment complies with Part 15, Subpart J of the FCC rules for a Class A computing device. This equipment also complies with the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications. These above rules are designed to provide reasonable protection against such interference when operating the equipment in a commercial environment. If operation of this equipment in a residential area causes radio frequency interference, the user, and not Minicom Advanced Systems Limited, will be responsible.

Changes or modifications made to this equipment not expressly approved by Minicom Advanced Systems Limited could void the user's authority to operate the equipment.

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2. Introduction

The MX IP system from Minicom is a CAT5 based Distributed KVM Switching system with remote KVM access via IP. You can remotely access up to 63 computers. The system can be managed and controlled by 1 or 2 users.

MX IP features remote KVM access and control via a LAN, Internet, or ISDN connection. MX IP provides a non-intrusive solution for remote access and control. Remote access and control software runs on the MX IP embedded processors only and not on the servers, so there is no interference with server operation or impact on network performance.

Use the MX IP in a multi administrator and multi server environment. The MX IP combines digital remote KVM access via IP networks with a comprehensive and integrated system management.

3. The MX IP system components

The MX IP system consists of:

- The MX IP Management unit, plus the Optional Universal Phantom Manager unit
- Remote units
- Cables and accessories
- Marketing & Documentation CD
- Optional IPMI Option. This is a serial cable for connecting the MX IP and an IPMI V1.5 compliant serial management port on the remote system.
- Optional Internal Reset/Power Option. The internal reset/power option (see Figure 2.2) consists of a PC bracket with a Sub-D 9 jack on the outside and 4x2 pin connector in the inner side. The Sub-D 9 jack is connected to the MX IP Serial Port 2. The internal 4x2 pin connector allows to connect the reset and power on/off switching signals of the main board to MX IP.

4. Management units

The 2 Management units are the MX IP and the Optional Universal Phantom Manager (UPM). These are illustrated in the figures below.



Figure 1 Phantom MX IP



Figure 2 Phantom UPM

5. Remote units

The Remote units are external boxes called Specters. Each remote computer has a Specter connected to it. There are a number of Specter types as follows:

- For PS/2 interface computers – Specter II PS/2
- For SUN computers – Specter II SUN
- For RS232 controllable devices – Specter II RS232
- For computers with USB interfaces– Specter II USB



Figure 3 The Phantom Specter II PS/2



Figure 4 The Phantom Specter II SUN



Figure 5 The Phantom Specter II RS232



Figure 6 The Phantom Specter II USB

6. Compatibility

The system is compatible with:

- IBM compatible, Silicon Graphics, SUN and Alpha computers
- VGA, SVGA, or XGA video standards
- All major computer and server manufacturers
- IntelliMouse™, Logitech WheelMouse, and PS/2 mice
- Microsoft DOS, Windows 3.1, 95, 98, 2000, NT4, ME and XP. Novel, Linux, SGI, BeOS, HP UX, Alpha UNIX, Open VMS
- PS/2, SUN, RS232, USB interfaces

7. System features

- Control and monitor mixed, multi-platform server environments of up to 63 remote computers from 2 Manager positions
- Advanced On Screen Display management (including multi-layer security), and BIOS level access
- A total distance of up to 110m/360ft between the Manager computer and the last connected Remote computer
- KVM (keyboard, video, mouse) access over IP, ISDN or analogous telephone line.
- Automatically senses video resolution for best possible screen capture
- High-performance mouse tracking and synchronization
- Connect a user console for direct access to KVM switch
- Local Mouse suppression (only when using SUN's Java Virtual Machine)

MX IP supports PS/2 type keyboards and mice and HD 15 video output. See the pin assignments in Appendix A.

MX IP automatically detects the current video mode of the console, however manual tuning is recommended to get the best video quality. MX IP will accept video streams up to 110 MHz dot clock. This results in a screen resolution of 1280x1024 dots with a refresh rate of 75 Hz.

8. System configuration

Figure 7 illustrates the MX IP usage scenario

Figure 8 illustrates the basic configuration of MX IP, showing it connected to a computer rack, the UPM, and to the IP network.

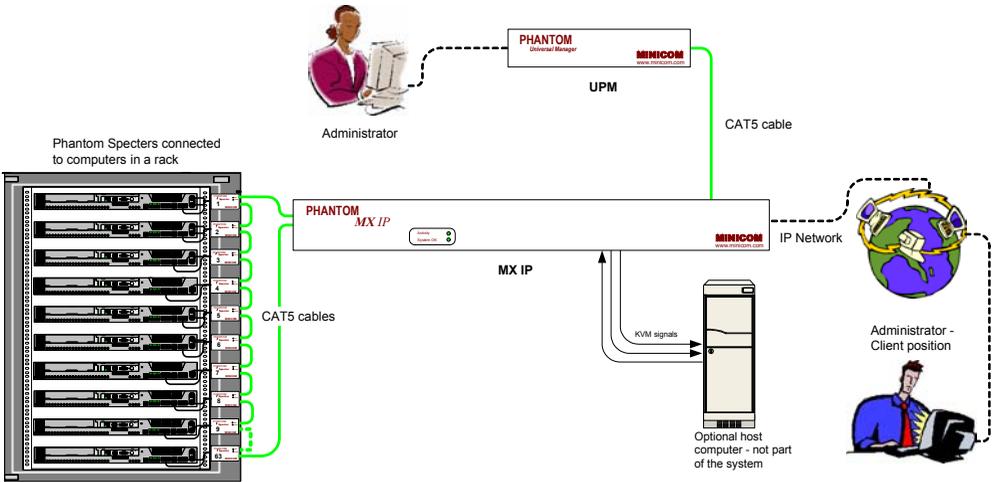


Figure 7 MX IP usage scenario

The MX IP system

A Dual-Management Server Solution over IP

Mixed Platform Example - PS/2, SUN, RS232, USB

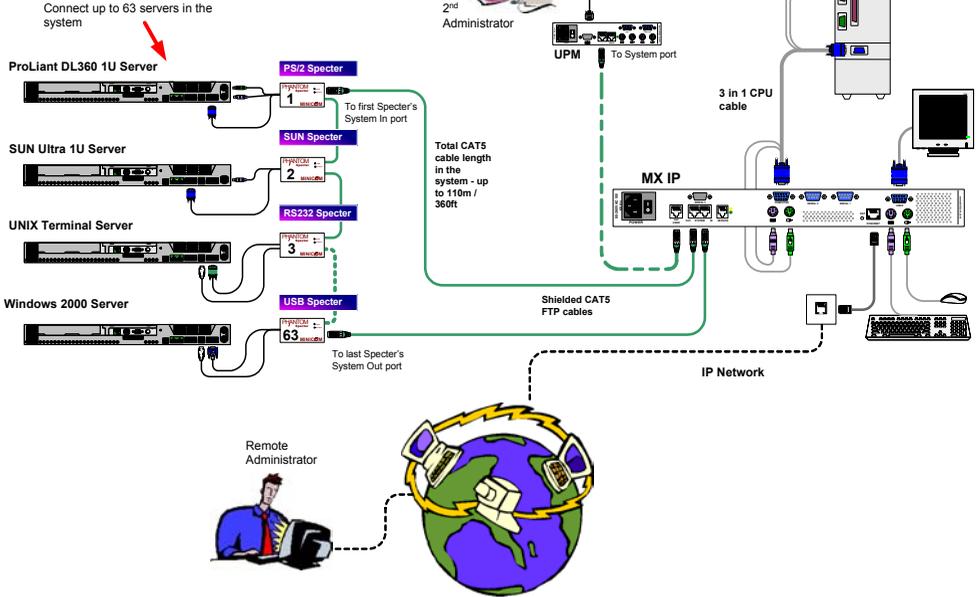


Figure 8 MX IP basic configuration

9. Remote power management

There are three remote power management options:

- Internal reset/power
- External scalable power switch box
- IPMI Version 1.5

The management system to use depends on the remote server interface.

Internal Reset/Power Option - This option applies to remote systems where no IPMI Version 1.5 is available. The optional bracket is mounted in a free PCI/AGP slot. Main board pins for reset and power on/off have to be connected to the bracket. With this option it is possible to perform a remote reset, power cycle, and power on/off.

External Power Switch Option - When there is neither a IPMI V1.5 option available or the ability to place a bracket in the remote system, an external power switch box can switch the power on and off.

IPMI Version 1.5 - defines a serial connection to access certain system parameters and perform system actions like powering down or a hard reset. Modern server systems, supporting the IPMI V1.5 specification, provide a mode where the externally available COM2 serial connection can be configured as a system management port (sometimes called an emergency management port). MX IP may use this port in order to enable remote system management operations.

10. MX IP front panel

Figure 9 illustrates the MX IP front panel.



Figure 9 Front panel

The table below explains the functions of the front panel LEDs.

LED	Function
Activity	LED blinks when Network connection is functioning
System OK	LED solid when IP Link system connected and functioning

11. The MX IP rear panel ports

The figure below illustrates the ports on the MX IP.

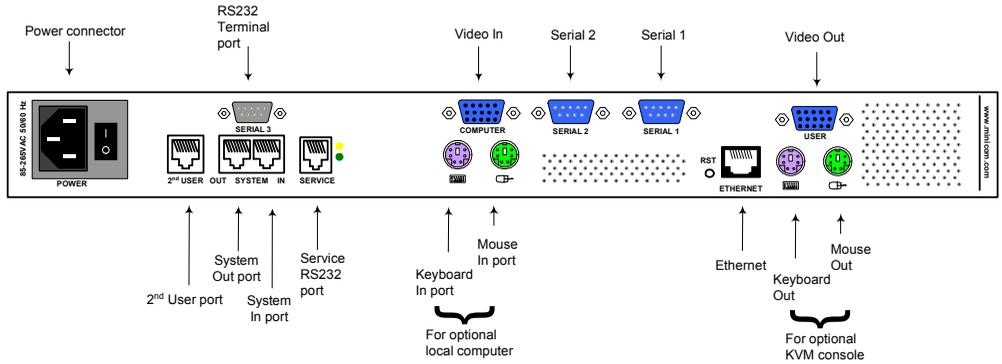


Figure 10 MX IP ports

You can work locally on the host system by connecting a KVM console to MX IP rear panel.

Serial 1 port

Serial 1 port is used as follows:

- IPMI Version 1.5 connection to the remote system using the IPMI Option cable
- Serial output for modem dial in connection
- Serial pass-through via Telnet
- Initial configuration

Serial 2 port

The Serial 2 port supports the internal and external power options

Ethernet

Connects the MX IP to an Ethernet network.

Reset (RST)

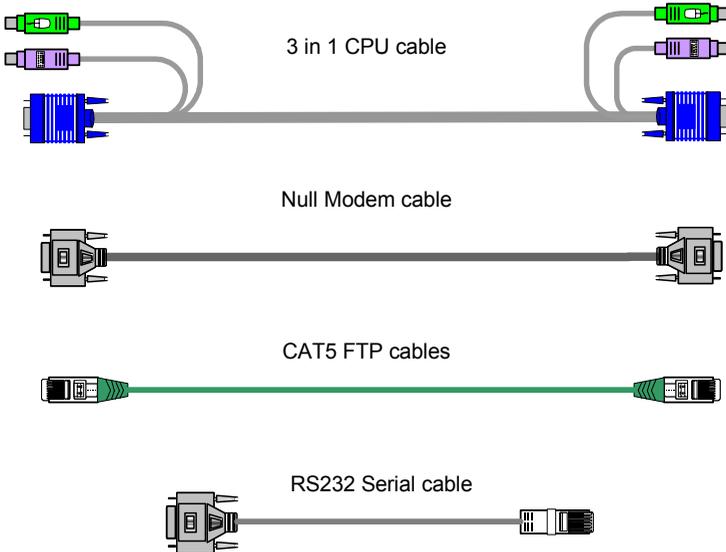
The Reset button resets the MX IP.

12. Pre-installation instructions

- Switch off all computers, and disconnect the power cords
- Place cables away from fluorescent lights, air conditioners, and machines that are likely to generate electrical noise
- Ensure that the total cable length does not exceed 110m / 360ft

13. The MX IP system cables

The MX IP package contains the following cables.



14. Connecting the MX IP

Connect the MX IP as follows:

1. Connect the power cord and Ethernet and/or modem connection.

When connecting an optional local computer follow steps 2 and 3.

2. Connect the connectors of one end of the 3 in 1 CPU cable to the KVM Computer ports of the MX IP.
3. Connect the connectors of other end of the 3 in 1 CPU cable to the KVM ports of the host computer.

4. You can connect a local KVM console to the User ports of the MX IP and work locally on the Phantom system. Figure 11 illustrates the connections.

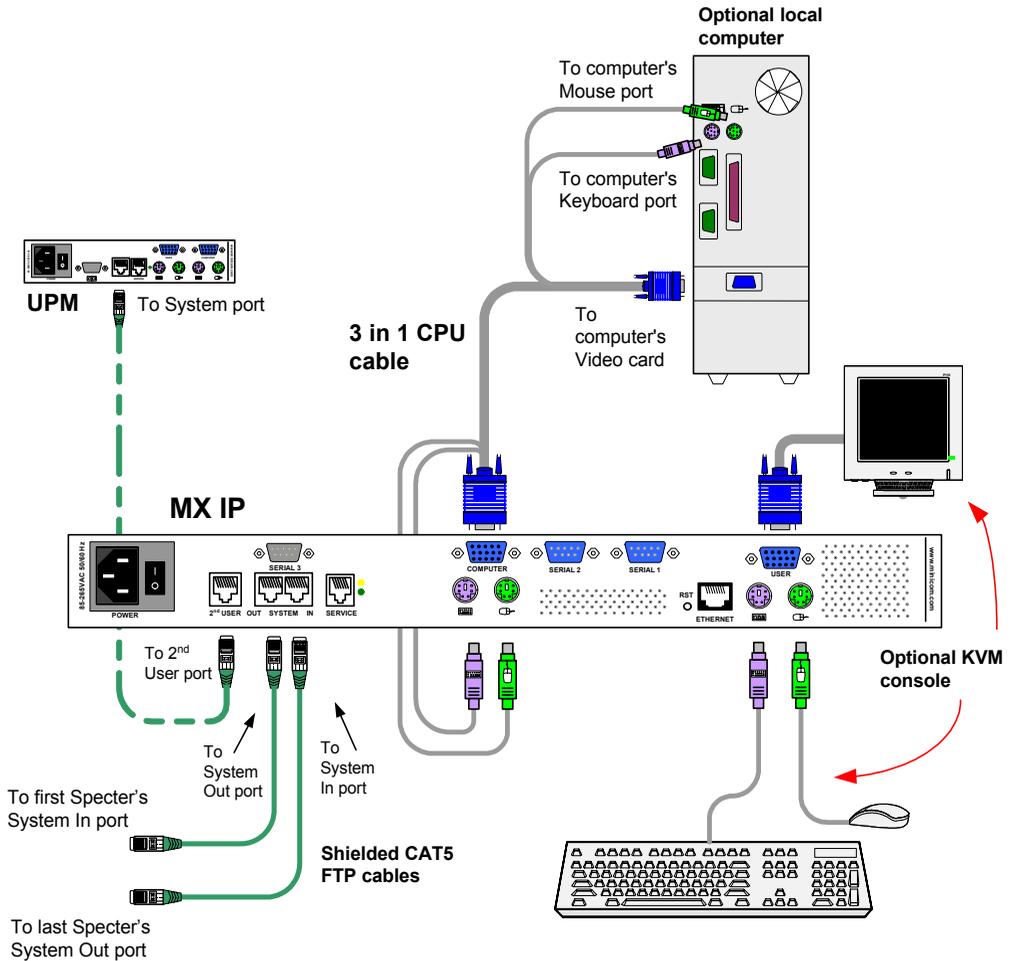


Figure 11 MX IP connections

15. Connecting the UPM

The optional UPM can be used by a 2nd administrator to control computers in the system. You have the option to connect a computer to the UPM and work locally.

To connect the UPM see the hardcopy UPM Quick Installation Guide and the softcopy UPM Installation Guide located on the Marketing & Documentation CD.

16. Connecting the MX IP system

The MX IP system is connected using Shielded CAT5 FTP System cable. The Shielded CAT5 FTP System cable consists of a Shielded CAT5 FTP (Foil Shielded Twisted Pair) Solid Wire 2x4x24 AWG (America Wire Gauge) cable terminated with RJ-45M connectors.

The total length of the CAT5 cables in the system can be up to 110m/360ft, see the configuration diagram on page 7. This includes the CAT5 loop and the cable distance from the MX IP to the UPM.

Recommendation. Before installing the Shielded CAT5 FTP System cable, work out how to connect all the computers using the shortest possible length of cable. A shorter cable length increases video quality, and reduces noise.

Note: If the supplied Shielded CAT5 FTP System cable length is not appropriate for your configuration, a custom length cable can be substituted. If you choose to use a cable with a different length, make sure to use CAT5 FTP (Foil Shielded Twisted Pair) Solid Wire 2x4x24 AWG cable, according to the T568B wire diagram.

The Shielded CAT5 FTP cables connect the Phantom system in a loop.

Connect one Shielded CAT5 FTP System cable to the MX IP as follows:

1. Connect one connector to the System Out port.
2. Connect the other connector to the last Phantom Remote's System In port.

Connect another Shielded CAT5 FTP System cable to the MX IP as follows:

1. Connect one connector to the System In port.
2. Connect the other connector to the first Phantom Remote's System Out port.

17. Connecting the MX IP to the UPM

Connect the MX IP to the UPM with a Shielded CAT5 FTP System cable as follows:

1. Connect one connector to the MX IP's 2nd User port.
2. Connect the other connector to the UPM's System port.

18. Connecting the Specters to the MX IP system

All the Phantom Specters connect to the system using Shielded CAT5 FTP System cables.

Figure 12 illustrates the System In/Out ports on all Phantom Specter models.

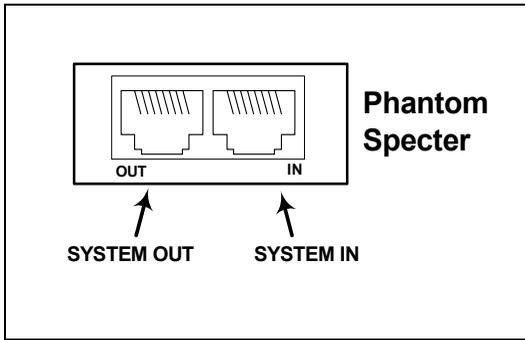


Figure 12 The Phantom Specter ports

19. Connecting the Specter II PS/2

Connect the Specter as illustrated in the figure below. Connect the Specter to a computer with the built-in cables. Connect the Specter to the Phantom system using Shielded CAT5 FTP cables. The Phantom Specter draws its power via the computer's Keyboard port.

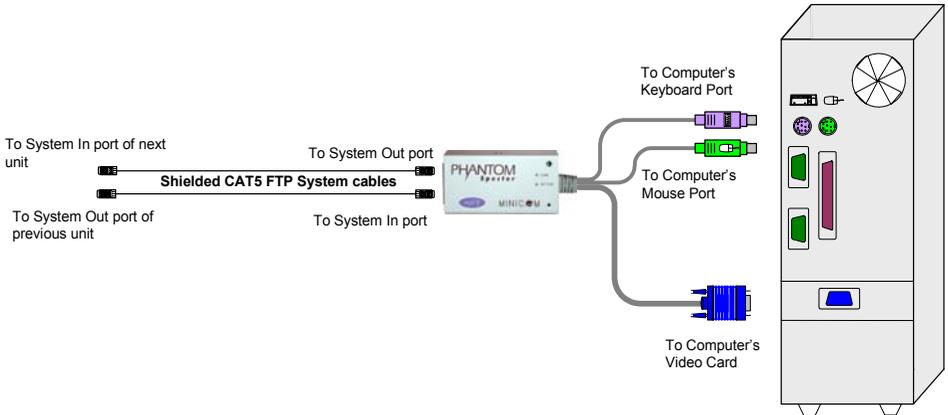


Figure 13 The Specter II PS/2 connections

20. Connecting the Specter RS232

To connect the Specter RS232:

1. Connect the Specter to a computer with the built-in cables – see the figure below.
2. Connect the Specter to the Phantom system using Shielded CAT5 FTP cables.

21. The RS232 power options

1. USB connection for power only – see Figure 14.

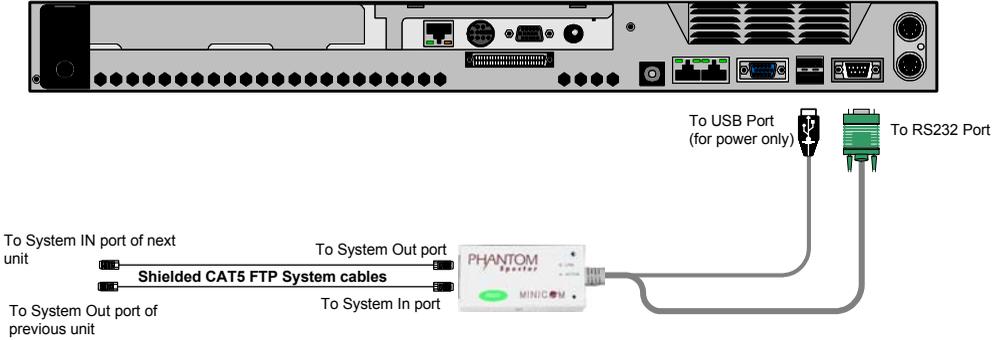


Figure 14 The Specter RS232 connections

2. Server without USB - connect a USB to PS/2 Adapter – illustrated below.
Connect the adapter to the Keyboard port.

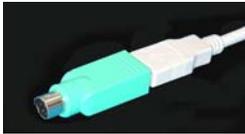


Figure 15 The USB to PS/2 Adapter

3. External power - connect USB connector to power adapter

22. Connecting the Specter SUN

Connect the Specter as illustrated in the figure below. Connect the Specter to a computer with the built-in cables. Connect the Specter to the Phantom system using Shielded CAT5 FTP cables. The Phantom Specter draws its power via the computer's Keyboard port.

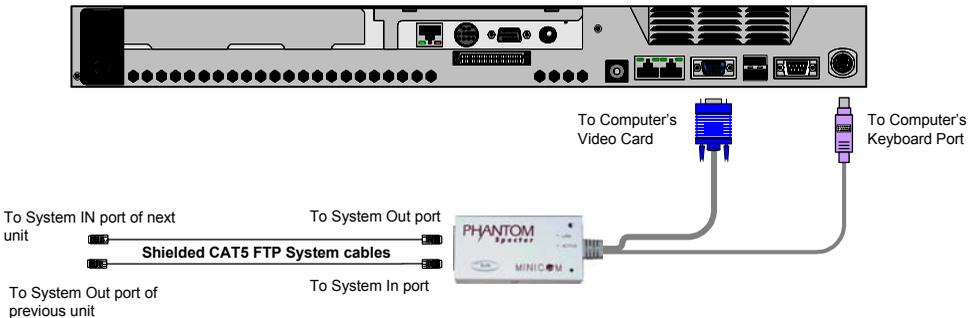


Figure 16 The Specter SUN connections

23. Connecting the Specter USB

Connect the Specter as illustrated in the figure below. Connect the Specter to a computer with the built-in cables. Connect the Specter to the Phantom system using Shielded CAT5 FTP cables. The Phantom Specter draws its power via the computer's USB port.

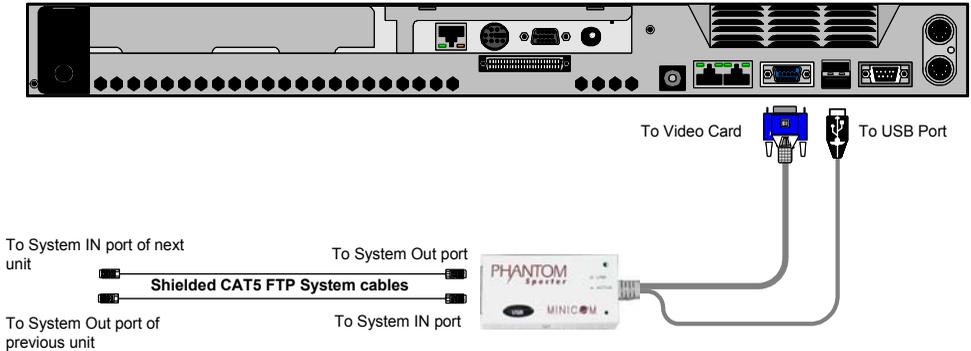


Figure 17 The Specter USB connections

24. Connecting the RS232 terminal

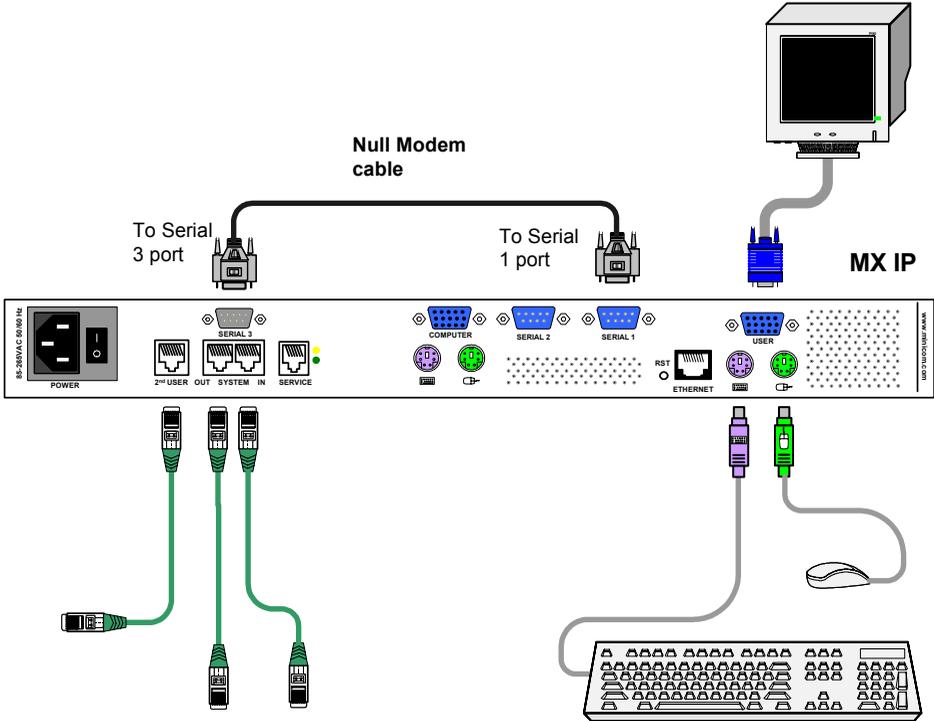
When there are RS232 Specters in the system, you can control them through an RS232 terminal.

- When a computer is connected to the Phantom Manager, control the RS232 servers via the computer's Terminal emulation software OR optional terminal.
- When no computer is connected to the Phantom Manager, control the RS232 servers via the terminal.

25. Controlling the RS232 Specters

You can control the RS232 Specters from the Telnet window of the Phantom MX IP when the system is connected over the Ethernet.

Connect the Null Modem cable to the MX IP as illustrated in the figure below.



26. Connecting the RS232 terminal

Connect the RS232 terminal to the MX IP as illustrated in the figure below.

See Appendix A for the RS232 Terminal Connector pin-out.

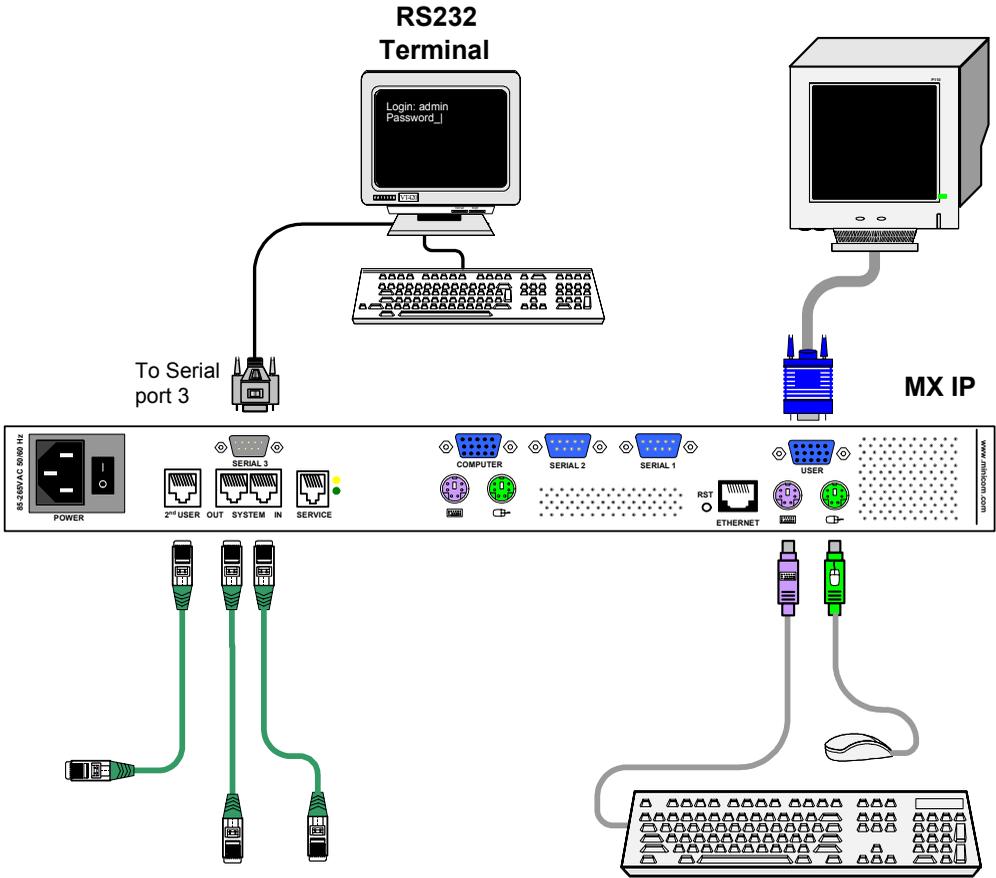


Figure 18 The RS232 terminal connected to the MX IP

27. Connecting the IPMI option

IPMI Version 1.5 defines a serial connection to access certain system parameters and to perform actions like switching off the system or performing a hard reset. Connect a Serial cable to a Serial port on the host computer and the Serial 1 or 2 port on the MX IP.

For further information about IMPI 1.5, see <http://developer.intel.com/design/servers/ipmi/tools.htm>

To use the IPMI over a serial interface enable it in the host computer. This is done using BIOS settings or special utilities provided by the server manufacturer. Refer to the server manufacturer's manual site.

Note! IPMI V1.5 is only supported by server systems manufactured in 2002 onwards.

28. Connecting the Internal Reset/Power Option

Figure 19 shows the top view of the reset/power bracket.

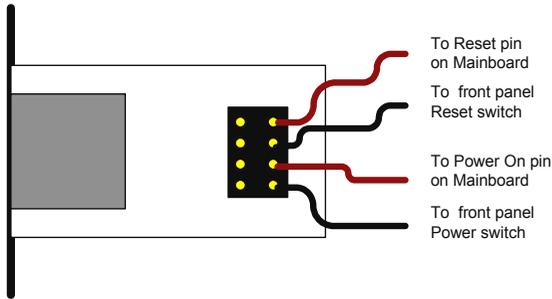


Figure 19 Reset/power bracket

Additional cables are required to enable the remote reset and power functions.

To install the bracket:

1. Mount the bracket in a free slot of the controlled system.
2. Find and disconnect the cable connecting the front panel reset button to the main board.
3. Connect the cable to the pin connector on the bracket as shown in Figure 19.
4. Take the red/black reset cable and connect one end to the Motherboards reset jumper connector and the other end to the bracket connector.
5. Find and disconnect the cable connecting the front panel power button and the Motherboard.
6. Connect it to the pin connector on the bracket.
7. Take the red/black power cable and connect one end to the Motherboard 's power jumper connector and the other end to the bracket connector.
8. Connect the bracket to the MX IP Serial port 2 using the supplied SUB-D 9 to SUB-D 9 connector.

29. Connecting the External Reset/Power Option

Refer to the of the External Power Switch Option guide to connect this to one of the serial ports. To date supported options are:

- SPC 800/1600
- Sentry In-Line Power Module
- Intelligent Power Module
- Leunig ePowerSwitch
- Leunig ePowerSwitch –M/S

30. Connecting to Ethernet

The Ethernet connector on the MX IP can be used either for a 100 Mbps 100BASE-TX connection or for a 10 Mbps 10BASE-T connection. The adapter adjusts to the appropriate operation mode automatically.

31. 10 Mbps Connection

For 10BASE-T Ethernet networks, the Fast Ethernet adapter uses Category 3, 4, or 5 cable. To establish a 10 Mbps connection, the cable must be connected to a 10BASE-T hub. Ensure the cable is wired appropriately for a standard 10BASE-T adapter. Align the RJ-45 plug with the notch on the adapter's connector and insert it into the adapter's connector.

32. 100 Mbps Connection

For 100BASE-TX Fast Ethernet networks, the MX IP supports Category 5 cabling. To establish a 100 Mbps connection, the cable must be connected to a 100BASE-TX hub.

1. Make sure that the cable is wired appropriately for a standard 100BASE-TX adapter.
2. Align the RJ-45 plug with the notch on the adapter's connector and insert it into the adapter's connector.

Note! The UTP/FTP wire pairs and configuration for 100BASE-TX cable are identical to those for 10BASE-T cable when used with Category 5 UTP/FTP cable.

33. Connecting the RS232 Serial cable

To operate the Phantom system with the Control software located on the Marketing & Documentation CD, connect the RS232 Serial cable.

To connect the RS232 Serial cable:

1. Connect the cable's RJ11 connector to the MX IP's Service connector. See Appendix A for the Service Connector Pin-out.
2. Connect the cable's DB9F connector to a Serial port on the computer's rear panel.

The figure below illustrates the connections.

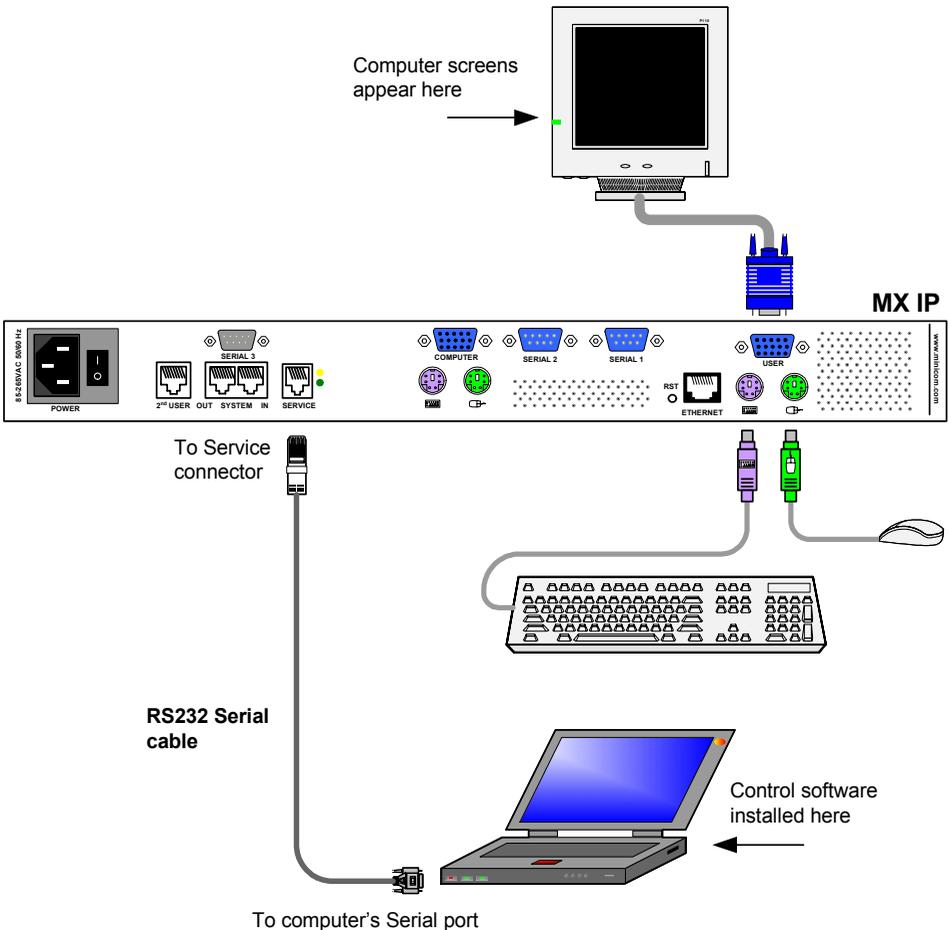
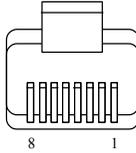


Figure 20 The MX IP with the RS232 Serial cable

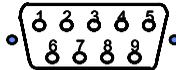
Appendix A: Pin assignments

RJ 45 Connector Ethernet



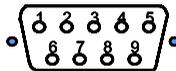
Pin	Assignment	Pin	Assignment
1	TX +	5	Not connected
2	TX -	6	RX -
3	RX +	7	Not connected
4	Not connected	8	Not connected

Serial SUB-D 9 Connector 1



Pin	Assignment	Pin	Assignment
1	DCD	6	DSR
2	RX	7	RTS
3	TX	8	CTS
4	DTR	9	RI
5	GND		

Serial SUB-D 9 Connector 2



Pin	Assignment	Pin	Assignment
1	DCD	6	DSR, Reset2
2	RX	7	RTS, Power1
3	TX	8	DTS, Power2
4	DTR, Reset1	9	Not connected
5	GND		

Pins 1 and 6 are bridged

RS232 Serial cable pin-out

RJ11 Service	Signal	DB9
1	N/C	-
2	TXD	2
3	RXD	3
4	N/C	-
5	GND	5
6	N/C	-

Serial SUB-D 9 Connector 3

Pin	Signal
1	N/C
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	N/C

Appendix B: Technical specifications

Host computer - Operating systems	DOS, Novel, Linux, UNIX, Windows 3.1,9X, ME, NT4, 2000, XP, 2003 Server and later
Client computer - Operating systems	Windows 98, ME, 2000, XP and later, Linux, MAC and SUN. Internet browser with full Java support
Host computer – resolution	Up to 1280x1024 @75Hz
Client computer – resolution	Recommended resolution should be higher than host computer resolution
Number of Remote Units	63
Maximum KVM System cable distance	110m/360ft
MX IP to local KVM connection	Screen – HDD15; Keyboard/Mouse – MiniDIN6
MX IP to computer connection	3 in 1 CPU cable 1.8m: HD15-MiniDIN6-MiniDIN6 (Supplied with system)
Line connection	RJ45 – LAN, Autosensing 10/100 Mbit/s RJ45 - 2nd user CAT5 FTP cable 2 x RJ45 - System
Serial connection	3 x DB9: COM1 for initial configuration and external modem. Power. COM2 for power management only. COM3 for RS-232 applications.
Service connection	RJ11
Product weight	2.2 kg / 4.8 lb
Shipping weight	2.7 kg / 6.0 lb
Dimensions	431mm x 176mm x 41mm / 17" x 6.9" x 1.6"
Power supply	85 – 265 VAC 50 / 60 Hz

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Operating temperature	5°C to 40°C / 41° to 104°F
Storage temperature	-40°C to 70°C / -40° to 158°F
Operating humidity	10% to 90% (non-condensing)
Storage humidity	5% to 95% (non-condensing)
Warranty	3 years

