Johnson Controls

P2000AE

Security Management System

HP® ProLiant ML350 G5

Server Installation Manual

December, 2008
24-10241-11 Revision –

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CE

Declaration of Conformity

This product complies with the requirements of the European Council Electromagnetic Compatibility Directive 2004/108/EEC and the Low Voltage Directive 2006/95/EEC.

This equipment must not be modified for any reason and it must be installed as stated in the Manufacturer's instruction.

If this shipment (or any part thereof) is supplied as second-hand equipment, equipment for sale outside the European Economic Area or as spare parts for either a single unit or system, it is not covered by the Directives.

UNDERWRITERS LABORATORIES COMPLIANCE VERIFICATION SHEET
P2000AE SYSTEM

This product is listed under Underwriters Laboratories UL 1076 for Proprietary Burglar Alarm Units and Systems. When installed at the site the following requirements must be met to comply with this standard.

1. Transient protection devices that are installed must not be removed or defeated.
2. The computers audible alarm indicator must not be disabled.
3. All system components must be connected to a UL Listed Uninterruptible Power Supply that provides a minimum of 24 hours of AC emergency power.
4. The maximum number of Panels that may be connected to the P2000 system is 1000.
5. The P2000 shall give priority to signals in the order given below and shall annunciate subsequent signals at a rate no less than one every 10 seconds

Priority 0	Highest Priority	Hold-up or Panic Alarm
Priority 1	Second Highest	Burglar Alarm
Priority 2	Third Highest	Burglar Alarm Supervision
Priority 3	Fourth Highest	Other Supervisory Alarms
Priority 4	Fifth Highest	Guard Tour

6. The “Pop-up” feature for input points must be enabled.
7. At the host computer (Central Station), alarms must not be filtered away from the host using the feature “Message Filtering”.
8. Alarms must not be forwarded away from the host computer (Central Station) using the feature “Message Forwarding”.
9. The “Panel Poll Interval” must not exceed 90 seconds for CK705, CK720, CK721 and/or CK721-A panels.
10. The “Host Poll Timeout” must not exceed 200 seconds for CK705, CK720, CK721 and/or CK721-A panels.
11. P2000 server must use transient suppression devices on the LAN interfaces at the computers. The table below specifies the devices that must be used for the various types of LAN interfaces.

LAN Interface	Manufacturer of Device	Device Part Number
10Base-2	Black Box	SP350A-R2 (In-line connector)
10Base-2	Black Box	SP501A (“T” connector)
10Base-5 (AUI)	Black Box	SP362
10/100Base-T	Black Box	SP512A-R3

12. Systems requiring the use of a network hub, router and/or serial port server shall have that equipment installed in a temperature controlled environment. The temperature controlled environment must be maintained between 13 - 35°C (55 - 95°F) by the HVAC system. Twenty-four hour standby power shall be provided for the HVAC system.
13. The installer shall incorporate a supply line transient suppression device complying with the Standard for Transient Voltage Surge Suppressors, UL 1449, with a maximum rating of 330 V. Supply line transient suppression device is to be used with the power supply to the network hub, router, serial port server, serial-to-ethernet converter and RS232-to-RS485 converter.
14. The Hewlett Packard ML370 or ML350 serving as the P2000 host computer shall be installed in a temperature controlled environment. The temperature controlled environment must be maintained between 13 - 35°C (55 - 95°F) by the HVAC system. Twenty four hour standby power shall be provided for the HVAC system.
15. The 240 Vac configurations have not been tested by Underwriters Laboratories except for the ML370 G3 and the ML350 G5.

16. The workstation defined as “Server” must have the alarm monitor parameter set to “always active”.
17. For P2000 software version 4.1 or later, when configuring “Service Startup” parameters the following services shall not be disabled.

    P2000 RTL Route Service
    Metasys III Action Queue
    P2000 CK720 Download Service
    P2000 CK720 Priority Service v2.1
    P2000 CK720 Upload Service
    P2000 CK722 Interface Service
    P2000 Object Engine Service
    P2000 Periodic Service
    P2000 Smart Download Service
18. For Line Security over the Internet, between the P2000 server and the controllers CK705, CK720, CK721, CK721-A, CK721M, and CK722 the following equipment shall be used.

    NetScreen, Model NS-5XT-X0X (where X is any number 0 to 9), 4-Port VPN router

    The P2000 server and router shall be configured to use an encryption method including an Authentication Header (AH) and an algorithm capable of Triple-DES (3DES) or better that is NIST certified.
19. For Line Security over the Internet, between the P2000 server and the controller S321, the following equipment shall be used.

    NetScreen, Model NS-5XT-X0X (where X is any number 0 to 9), 4-Port VPN router and
    Digi International, Model Digi One SP serial-to-ethernet converter or
    B&B Electronics Mfg Co., Model 485OT9L RS232-to-RS485 converter

    The P2000 server and router shall be configured to use an encryption method including an Authentication Header (AH) and an algorithm capable of Triple-DES (3DES) or better that is NIST certified.
20. The router and serial port server shall be installed within the same room as the controllers CK705, CK720, CK721, CK721-A, CK721M, and/or CK722 and within 20 feet of the controller when employed for encrypted line security.
21. P2000 systems use the Digi International Model Digi One SP converter or B&B Electronics Model 485OT9L converter to communicate to S321-DIN controllers.
22. The B&B Electronics Model 485OT9L converter shall be installed within the same room as the P2000 server and within 20 feet of the server under all conditions of use.
23. The Digi International Model Digi One SP may be mounted at the central supervising station or the protected premise. When used at the central supervising station, a Cylix Model TSP-4B-E transient suppression device shall be used on the RS485 communication line. When used at the protected premise, a Blackbox Model RS512A-R3 transient suppression device shall be used on the LAN communication line.
24. A spare router, serial port server, serial-to-ethernet converter and RS232-to-RS485 converter shall be available and put in to service within 6 minutes when they are employed for encrypted line security with the controllers CK705, CK720, CK721, CK721-A, CK721M, and/or CK722.
25. P2000 workstations, network hubs, routers, serial port servers, serial-to-ethernet converters, and RS232-to-RS485 converters must use signal line transient suppression devices complying with the Standard for Protectors for Data Communications and Fire Alarm Circuits, UL 497B, with a maximum marked rating of 50V.
26. Alarm signals received at a remote P2000 server via the Remote Message Services from a different P2000 server are supplementary.
27. Alarm signals received at a P2000 workstation are supplementary.
28. Alarm signals received at a personal computer or personal digital assistant through the Web Access feature are supplementary.

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29. The communication medium between the protected property and communications service provider shall be for the exclusive use of the protected property and is not to be shared with other communications service provider subscriber.
30. From Message Data Configuration, under CK722 Device, for each Alarm Category on the Alarm Options tab, the following parameters must have its Enabled value set to True:

    Panel Down
    Hardware Module not Operational
    Notification Event Dropped
    Panel Input Point

31. The following features have not been investigated by Underwriters Laboratories

    BACnet interface to Metasys® products
    Dial-Up
    Intrusion
    Stop and Search

32. The following products have not been investigated by Underwriters Laboratories

    Aritech®
    S300-KDM

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INTRODUCTION

This manual provides complete instructions for installing the P2000AE Security Management System (SMS) Server. A typical system consists of an HP ProLiant® ML350 G5 Server computer, loaded with the required operating system, database server, prerequisites, P2000AE software and two network adapter cards. CK722, CK721-A, CK721, CK720, and CK705 controllers, and workstations may be connected to either card, or combined on one network card. The second network card can be used to isolate controllers and workstations configured as two separate networks. Additional system hardware and options are purchased separately.

P2000AE supports network communication between the Server and the previously listed controllers. You can configure your entire system to operate exclusively with these controllers.

A P2000AE system component configuration is illustrated in Figure 1-1 (network controller configuration). Options such as Video Imaging, additional controllers, and readers must be purchased separately.

NOTE

"P2000AE" is also referred to as "P2000" throughout this manual.

CHAPTER SUMMARIES

- ***Chapter 1: Introduction***, describes qualifications for installation, system options, Warranty Terms and Claims, Technical Support, and Manual Conventions.
- ***Chapter 2: Hardware Installation***, describes line power requirements, server components, and instructions for connecting the server to workstations and controllers.
- ***Chapter 3: BIOS and Microsoft Windows 2003 Setup***, describes how to configure the computer BIOS and install Windows Server 2003 R2.
- ***Appendix A: Grounding and Connectors***, describes basic grounding cable shields for data and low voltage installations.

IMPORTANT INSTALLATION NOTES

When purchased from *Johnson Controls*, your server's hardware and software are configured and installed at the factory. The instructions provided in this manual are for cases in which replacement parts or reinstalling the Server operating software must be performed in the field.

Qualification for Installation

The HP ProLiant family of computers are true servers, not desktop PCs. While these instructions are intended to guide you completely through the installation process, the technician installing these machines should possess a reasonable level of experience with server hardware and software; which includes networks and networking principles, network communication, cabling, and computer component installation.

This level of experience is necessary to determine if steps are mistakenly omitted, or completed incorrectly, or in situations where requirements of a particular site call for system configuration other than what is described in this manual.

Note on Other Manufacturer's Documentation

Johnson Controls, Inc. does not duplicate documentation of other equipment manufacturers. When necessary, as in this installation procedure, *Johnson Controls* provides documentation that supplements that of other manufacturers. When unpacking your equipment, **keep all original manufacturer documentation for future reference**.

Optional Server Hardware

- USB or serial printers

See *Chapter 2: Hardware Installation*, for more information on optional hardware requirements, part numbers, and installation.

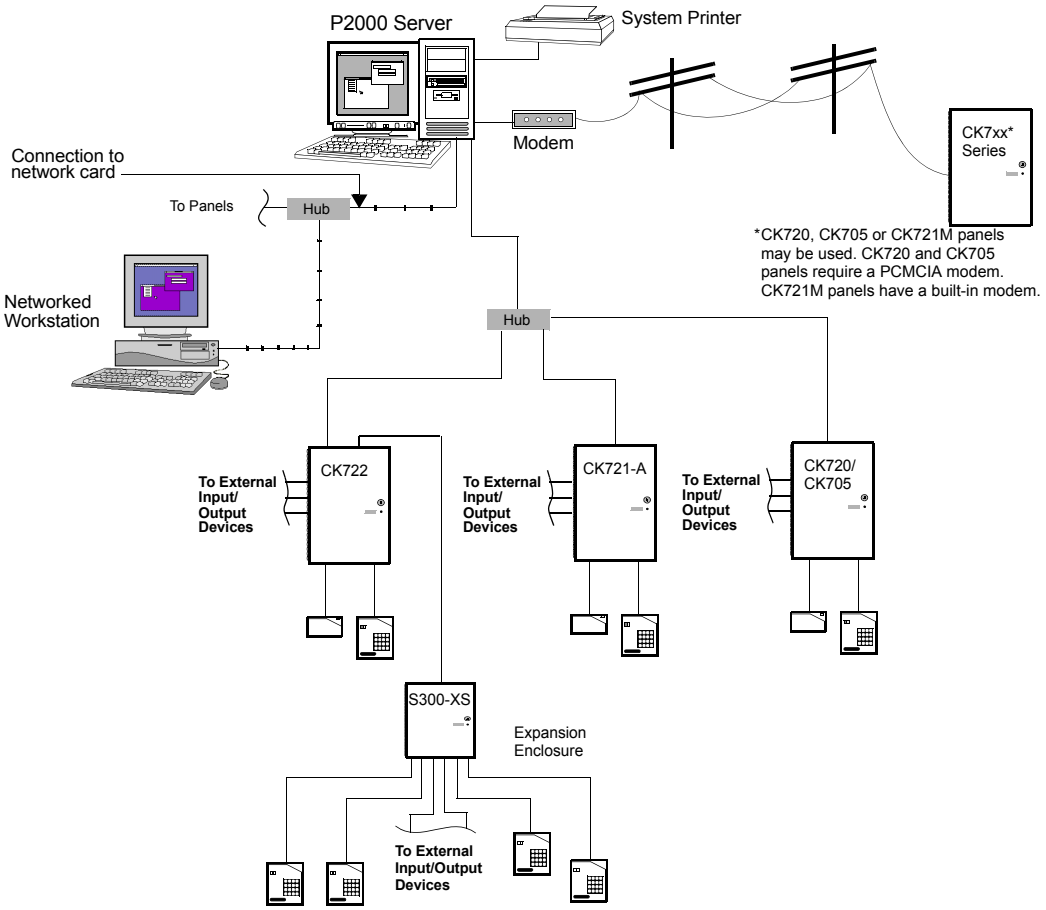


Figure 1-1: P2000 System with Network Controllers

WARRANTY TERMS AND CLAIMS

Inspect the shipping containers as soon as they are received. If any damage is observed, have the delivery agent note the damage on the shipping document. Some shippers may wish to be present when a damaged container is opened. Closely examine the equipment. If the equipment is damaged in any way, notify the carrier and a *Johnson Controls* representative immediately. Check the purchase order against the equipment received to ensure that the order is complete. Retain all packaging materials for possible reshipment.

Johnson Controls-labeled products are sold with a one year parts and shop labor warranty. Liability is limited to repair or replacement at the discretion of *Johnson Controls, Inc*.

TECHNICAL SUPPORT

Technical assistance is provided to *Johnson Controls* authorized dealer representatives from 5 a.m. PT to 5 p.m. PT Monday through Friday. System users can get answers to operator questions by calling the local *Johnson Controls Inc*. sales/service office.

The authorized dealer representatives can also provide you with information on the maintenance contracts and the on-site field service.

MANUAL CONVENTIONS

The following items are used throughout this manual to indicate special circumstances, exceptions, important points regarding the equipment or personal safety, or to emphasize a particular point.

NOTE

Notes indicate important points or exceptions to the information provided in the main text.

Cautions remind you that certain actions, if not performed exactly as stated, can cause damage to the equipment, security problems, or cause the system to operate incorrectly due to errors in system setup or programming.

Warnings indicate that the possibility of personal injury exists if an action or actions are not performed exactly as stated.

Chapter 2

HARDWARE INSTALLATION

This chapter describes the various hardware components used in the P2000 Security Management System. Complete specifications and instructions are presented in the following sections:

- Line Power Requirements
- Server Components (see page 2-2)
- Connecting Workstations (see page 2-5)
- Connecting CK722/CK721-A/CK721/CK720/CK705 Controllers (see page 2-6)
- Network Communications (see page 2-6)

LINE POWER REQUIREMENTS

The quality of line power supplied to the computer, and proper connection and grounding of power and data lines, must conform to local codes. Refer to *Appendix A: Grounding and Connectors* for grounding information.

A dedicated AC power line originating directly from the building AC power distribution panel is recommended. If 3-phase power is used in the building, one phase should be dedicated to the computer and other access control equipment. Live, neutral, and ground wiring should be dedicated lines originating at the AC distribution panel. These precautions should provide satisfactorily clean power to the computer. If the power is not within specified tolerances, some form of line conditioning is required.

Do not connect access control equipment to an AC power source controlled by a switch.

NOTE

European installations require permanently connected equipment and incorporate a readily-accessible disconnect device in the fixed wiring.

Power supplied to the computer must be within specified tolerance of the correct voltage and frequency, and must be relatively transient free. A Dranetz® Power Platform PP-4300 analyzer (or equivalent) should be used to analyze AC power to determine whether it meets *Johnson Controls* specifications as listed in Table 2-1.

Table 2-1: System AC Power Specifications

Parameter	Specification
Rated Input Voltage	115 VAC/230 VAC
Rated Input Frequency	50 to 60 Hz
Rated Input Current	10 A (120 V) to 5 A (240 V)
Rated Input Power	800 W
BTU Rating	3,990 BTU/HR

If system AC power does not meet *Johnson Controls* specifications, an isolation transformer, AC line conditioner, or uninterruptible power supply should be installed between the power source and the equipment. The type of device required will depend on the basic condition of the line and the security requirements for the facility.

If the facility is in an area where power lines are subject to frequent lightning strikes, verify with the electric company that the building transformer is equipped with surge protectors. These, as well as "crowbar" type protection circuits, can be installed at the main service entrance if the building transformer is not equipped with lightning protection.

SERVER COMPONENTS


WARNING

To avoid possible injury to yourself or damage to the computer, do not install or remove any component, or alter switch settings, while the computer is on.

If a modem is installed, disconnect the phone cord.


CAUTION

Anti-static Handling and Electrostatic Discharge (ESD)

ESD can damage static-sensitive components, such as circuit boards and other electronic devices.

Before handling static-sensitive electronic components, discharge any static electricity from yourself. Touch a grounded object such as a grounded, metal enclosure and use anti-static protection equipment.

While handling static-sensitive components, protect them by using anti-static gloves or similar types of protection, such as anti-static wrist bands and/or floor mats.

Server Specifications

Table 2-2 lists the specification for the P2000 Server. For environmental specifications and power requirements, refer to the *HP ProLiant ML350 G5 User Guide* supplied with the computer.

Table 2-2: HP ProLiant ML350 G5 Server Specifications

Hardware	Component	Notes
CPU	Xeon	
RAM	4 GB	5, 10-user
Video Card	ATI ES1000	Integrated
Video Memory	32 MB SDRAM	
Video Monitor	HP, 17 inch	
Disk Controller	HP Smart Array E200i	Integrated
Hard Disk Drive	72 GB HP Hot Swap	SAS
DVD Rewriter Drive	16x	IDE
Universal Serial Bus (USB) Ports	Six (2 front, 2 rear, 2 internal) USB Ports	
Pointing Device	Two-button mouse	
Keyboard	101	
Ethernet Adapters	One embedded network interface controller, one network interface card (NIC)	10/100/1000 (1Gb)

Server Overview

Figure 2-1 shows typical locations of key components and ports on the HP ProLiant ML350 G5 Server in a P2000 configuration. All boards and devices are factory installed. (Computer configuration may differ slightly, at the manufacturer's discretion. Adjust any installation steps or settings, as necessary.)

Server configurations, such as IRQs and memory locations assigned, are addressed automatically by the Server BIOS. See *Chapter 3: BIOS and Microsoft Windows 2003 Setup*.

The Server maintains the P2000 database, such as cardholder records, access groups, controllers (or panels), and terminals. The Database Server also connects to the field hardware (controllers) and workstations. Server component information is presented in the following sections.

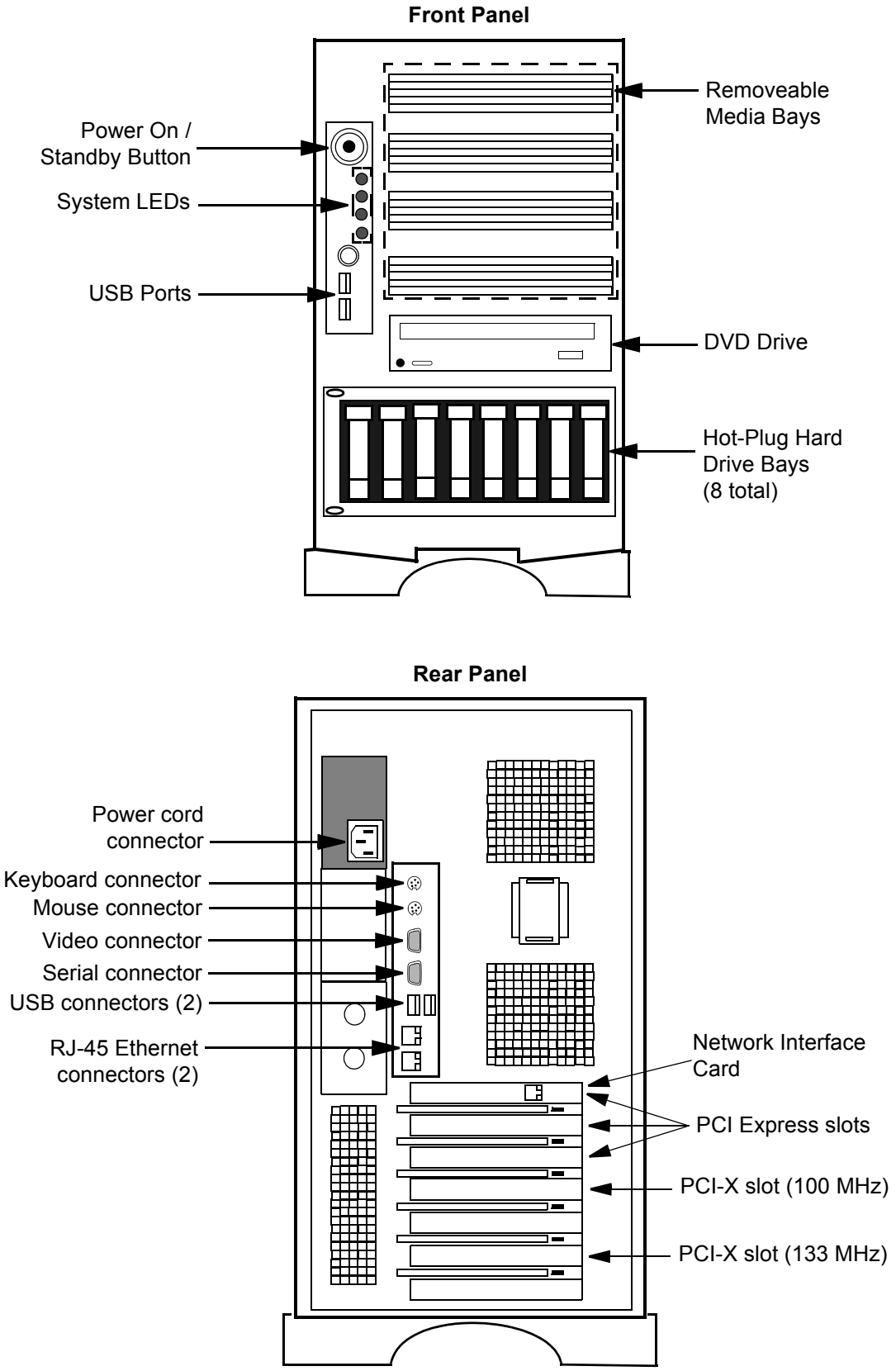


Figure 2-1: HP ProLiant ML350 G5 Default Component/Port Locations

Server Setup (Basic Components)

To connect power to the server, and set up the monitor, keyboard, and mouse, refer to the *HP ProLiant ML350 G5 User Guide* shipped with the server.

Network Adapters

The embedded network controller and NIC are provided to connect your workstations (and CK722, CK721-A, CK721, CK720, or CK705 controllers, if desired) to the network, and to provide an interface to a 10/100/1000Base-T hub to isolate controller and workstation network traffic on different networks.

General Cable Requirements

All cabling must be in conformance with the National Electric Code, NFPA 70*. Local codes should be observed for specific wiring and conduit requirements. Cabling should be constructed using good wiring practices and all cables should be long enough to allow for service loops at their terminations. This will allow the installer to conveniently wire the cable connectors and plug them into the mating connectors.

*For Canadian installations, refer to the Canadian Electric Code, C22.1.

Cable Routing

- Route power lines separately from data lines.
- Install all low-level input cables in grounded conduit or at least two feet from AC power, fluorescent lights, or other high-energy sources.

CONNECTING WORKSTATIONS

Workstations operate on Microsoft® Windows® 2000, Windows XP®, Windows Vista® Business, and Windows Vista Ultimate.

NOTE
Workstations shipped from Johnson Controls are installed with the Windows XP operating system.

Workstations can be connected to an integrated network card via an Ethernet connection. The twisted pair cable connection (10/100Base-T) is available on the CPU board. Refer to “Network Communications” on page 2-6 for more information.

A remote printer is optional at any workstation.

CONNECTING CK722/CK721-A/CK721/CK720/CK705 CONTROLLERS

CK722/CK721-A/CK721/CK720/CK705 controllers are advanced, intelligent devices that connect to the Server via standard network cabling and hubs (CK720 and CK705 controllers use 10Base-T cabling and hubs, whereas CK722, CK721-A, and CK721 controllers use 10/100Base-T cabling and hubs). You can configure your entire Security Management System using these controllers. Configured via a user interface through the serial connection located on their CPU board, these controllers can be initially set up, commissioned, and serviced at the controller. You can add terminal boards and readers, monitor 2 or 4-state input points, and add output relays to perform manual or automatic control functions.

For detailed instructions on controller installation and configuration, refer to their respective documentation. Refer to “Network Communications” on page 2-6 for more information on setting up the network configuration.

NETWORK COMMUNICATIONS

Network-compatible controllers, such as the CK722, CK721-A, CK721, CK720, and CK705 controllers, communicate with the Server via 10Base-T and 10/100Base-T (CK722, CK721-A, and CK721 only) network connections. Workstations communicate with the Server via 10/100Base-T network connections. This sections describes the basic principles of network communication.

Network Transient Suppression

P2000 systems and workstations that are UL 1076-listed systems must use transient suppression devices on the LAN interfaces at the computers. Table 2-3 specifies the devices that must be used for the various types of LAN interfaces. Follow the manufacturer’s instructions supplied with the transient suppression device for installation instructions.

Table 2-3: Transient Suppression for LAN Interfaces

LAN Interface	Manufacturer of Device	Device Part Number
10Base-2	Black Box	SP350A-R2 (In-line connector)
10Base-2	Black Box	SP501A (“T” connector)
10Base-5 (AUI)	Black Box	SP362
10/100Base-T	Black Box	SP512A-R3

Networking Principles

The following illustration shows 10/100Base-T Networking using integrated HP Network Controllers that provide a 10/100Base-T Medium Dependent Interface (MDI), which is an RJ45 port. This subsection lists the equipment needed for constructing a 10/100Base-T P2000 network and the rules and limitations for the network.

NOTE

The following items are required to create 10/100Base-T networking, but are NOT supplied by Johnson Controls and must be purchased separately.

- 10/100Base-T Hub(s)
- Category 5 (Cat5) Unshielded Twisted Pair cable, 10/100 Mbps transfer rate
- RJ45 Connectors and crimping tool

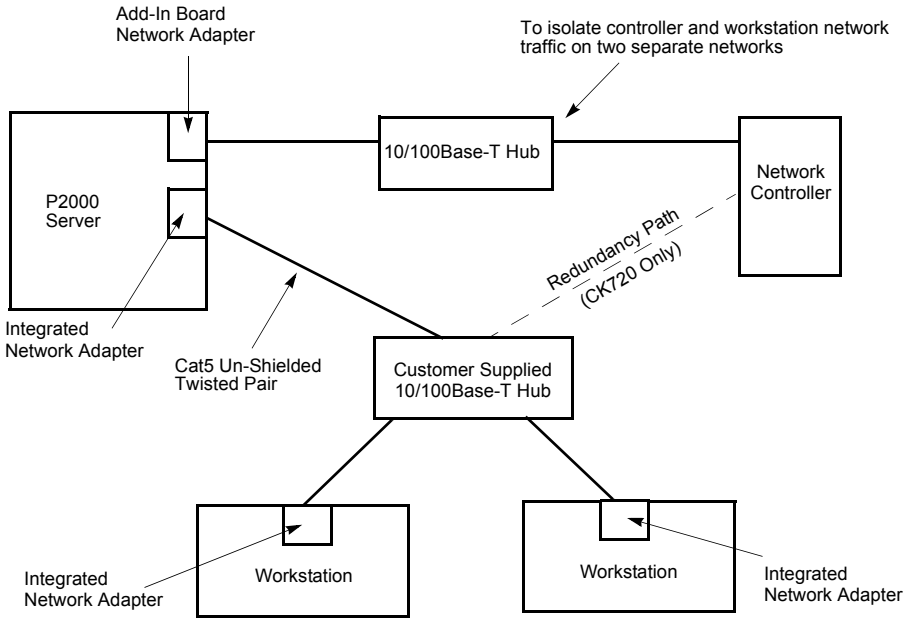


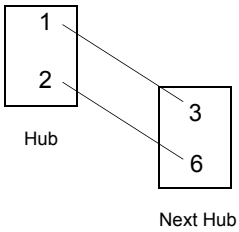
Figure 2-2: 10/100Base-T Network Configuration

10/100Base-T Networking Guidelines

Consider the following guidelines when planning a 10/100Base-T network installation.

- Maximum segment length is 100 meters (328 feet).
- Wiring from PC (Workstation and Server) to hub is straight through.

- Wiring between hubs requires the following pins to be crossed as shown in the following diagram (all other pins are wired straight through).



- A single LAN, which does not use bridges or routers, can contain a maximum of four repeaters (hubs) and five segments, as shown in Figure 2-3.
- The maximum distance between the P2000 Server and the farthest workstation is 500 meters, without the use of bridges or routers.
- Figure 2-3 is intended only as an example and should not be considered a recommended configuration layout.

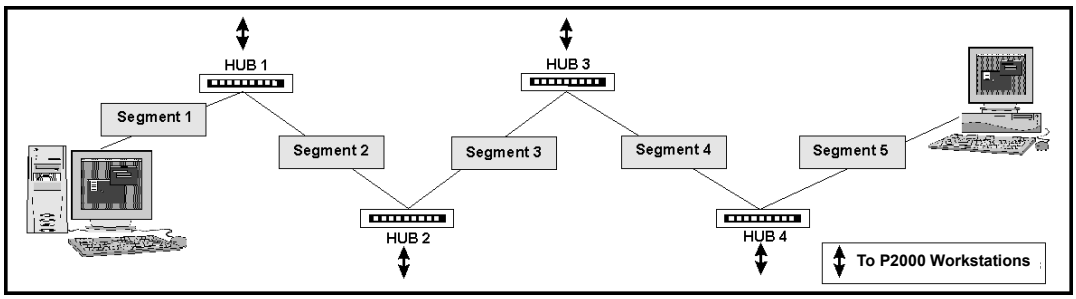


Figure 2-3: Basic 10/100Base-T Network Configuration

Using Bridges and Routers

You can extend the distance of a Local Area Network (LAN), or form LANs into Wide Area Networks (WANs), through the use of bridges and routers. A variety of bridges and routers are available; each is designed for a different use. For example, one bridge design can be used to connect LANs in the same building, and another design can connect LANs across numerous states.

We recommend that you consult an experienced networking professional when considering the use of network bridges, routers, or network switches, any or all of which can extend your network's distance.

Testing Communications

This test assumes that all hardware and software is installed (refer to the *P2000AE Server/Workstation Software Installation Manual*) and the system is programmed for normal operation; that is, controllers, terminals, cards, alarms, and so on are defined in the system. Use the System Status function from the P2000 Server

computer to verify at least one controller and one terminal are *UP*. (Refer to the *P2000AE Software User Manual* for more information.)

➤ **To verify network controller communications:**

1. From the P2000 Main menu, select **System>Real Time List**.
2. On the Real Time List window, select the **Access Grant** and **Access Deny** check boxes.
3. Present a valid card to a reader connected to a network controller.
4. If the appropriate message was not displayed or access was denied, verify that system programming and system wiring are correct.
5. Repeat step 1 through step 3 until the expected indicators are received.

NOTE

Refer to "Technical Support" on page 1-4 for field service information.

ROUTINE MAINTENANCE

For information concerning routine maintenance, refer to the *HP ProLiant ML350 Generation 5 Server Maintenance and Service Guide*.

CONDITIONS OF IMPAIRED PERFORMANCE

The conditions of impaired performance are listed in Table 2-4, along with the location of troubleshooting information.

Table 2-4: Impaired Performance Description

Condition	Described in
Unit not kept dust free	HP documentation (see "Routine Maintenance" on page 2-9)
Unit environment not as specified	HP documentation (see "Routine Maintenance" on page 2-9)
Unit power and grounding not as specified	HP documentation (see "Routine Maintenance" on page 2-9) and Appendix A
Cable, cable type, distance and/or electrical environment not as specified	HP documentation (see "Routine Maintenance" on page 2-9)
Conditions indicated by test failure	"Testing Communications" on page 2-8

BIOS AND MICROSOFT WINDOWS 2003 SETUP

CONFIGURING NEW INSTALLATIONS

After the hardware has been installed and the cables are connected, use the information in this chapter to configure the system hardware and to install the Microsoft® Windows® Server 2003 R2 operating system.

Starting a new HP ProLiant® ML350 G5 server that has never been configured or had P2000 software installed on it before requires the use of the *HP SmartStart CD* and the *Microsoft Windows Server 2003 R2 CDs*. Use the instructions presented in the following paragraphs to install the HP BIOS and the Microsoft Windows Server 2003 operating system.

NOTE

The screen captures and instructions in this chapter may differ slightly, depending on the installation media and the software version you are using.

BIOS Installation

You will need:

- HP SmartStart CD Version 7.90 or higher
- Product key (found on the back of the Microsoft Windows Server 2003 R2 CD folder)

NOTE

SmartStart Release 8.0 was used at the time these instructions were written. Your version of SmartStart may differ from the procedures described in this chapter. It is beyond the scope of this manual to cover all versions of SmartStart, so follow the general outline to enter the proper settings.

➤ To erase the system:

NOTE
It is recommended to erase the system before the installation.

1. Turn on the computer (this assumes all components have been installed according to the HP instruction).
2. Insert the HP SmartStart CD.
3. Boot the computer from the CD (with the CD inserted, go to **Start**>**Shut Down**, select **Restart** and click **OK**).
4. If prompted, click **SmartStart 8.0**.
5. When prompted, select the interface language and keyboard language and click **Continue**.
6. Read the license agreement and accept it by clicking the **Agree** button.
7. Click the **Maintain Server** button.
8. On the Maintenance Utilities screen, click **Erase System**.
9. Verify that all check boxes are selected and click **Continue**.
10. When the warning appears, click **OK** to proceed.
11. The system restarts automatically.

    Do not remove the CD until prompted to do so.

➤ To start the configuration:

1. After the server restarts, when prompted, select the interface language and keyboard language and click **Continue**.
2. Read the license agreement and accept it by clicking the **Agree** button.
3. Click the **Deploy Server** button.

➤ To set up the BIOS:

1. Click the **Reboot to RBSU** button.
2. Click **OK** to restart the computer.
3. After the server restarts, using the arrow keys, select **Boot Controller Order**. Press <**Enter**>.
4. Using the arrow keys, select **HP Smart Array E200i Controller**. Press <**Enter**>.
5. Using the arrow keys, select **Controller Order 1**. Press <**Enter**>.
6. Press the <**Esc**> key to close the menu.
7. Press the <**Esc**> key again to exit the utility.
8. Press the <**F10**> key to confirm. The system restarts automatically.

   Do not remove the CD until prompted to do so.

➤ **To select the operating system:**

1. After the server restarts, when prompted, select the interface language and keyboard language and click **Continue**.
2. Read the license agreement and accept it by clicking the **Agree** button.
3. Click the **Deploy Server** button.
4. Click **Continue**.
5. Select the **Microsoft Windows 2003** folder.
6. In the expanded list of Microsoft Windows 2003 operating systems, select **Microsoft Windows Server 2003 R2, Standard Edition** and click **Continue**.
7. On the Operating System Media Source window, select the **CD-ROM** and **Flat Files** radio buttons. Click **Continue**.

➤ **To prepare for the Windows Server 2003 R2 installation:**

1. Accept the default disk partition settings by clicking **Continue**.
2. Specify the **User Name** and **Organization Name**. Enter the **Product Key**.
3. Verify that **Per Seat** is selected as the **License Type**. Click **Continue**.
4. On the SNMP Configuration window, accept the default settings or set up Simple Network Management Protocol (SNMP) per your system administration requirements. Click **Continue**.
5. On the Management Instrumentation window, select **No** and click **Continue**.
6. On the ProLiant Support Pack window, select **Express** and click **Continue**.
7. Verify the settings and click **Continue**. Proceed with the "Microsoft Windows Server 2003 R2 Installation" section.

Microsoft Windows Server 2003 R2 Installation

You will now proceed with the Microsoft Windows Server 2003 R2 installation. For the most part, you will install Microsoft Windows Server 2003 R2 per the manufacturer's instructions and according to your system administration requirements. Installation steps are fully documented in the following sections.

You will need:

- Microsoft Windows Server 2003 R2 CDs

➤ **To install Microsoft Windows Server 2003 R2 software:**

1. When prompted, remove the SmartStart CD and insert the Windows Server 2003 R2 CD 1. Click **Continue**.
2. Wait while SmartStart automatically loads the files and configures your system.
3. When the CD is ejected, remove it.

4. Wait for the setup to complete. The system will automatically restart multiple times. This may take several minutes.

➤ To perform Windows Server 2003 R2 setup:

1. On the Windows Setup window, adjust your regional and language options, if needed. Click **Next**.
2. Enter your **Name** and **Organization**. Click **Next**.
3. In the **Computer Name** field, enter a name for the server. You will need to use the same name when connecting P2000 Workstations. Also, enter and confirm a password for the Windows 2003 Administrator. (Johnson Controls uses `Master1` as the factory setting.) Click **Next**.
4. Set the computer date, time, and time zone, as applicable. Click **Next**.
5. On the Workgroup or Computer Domain window, select **No, this computer is not on a network, or is on a network without a domain**. Type a workgroup name in the following box and click **Next**.
6. Wait while Windows copies files to complete the installation. This will take approximately 30 minutes.
7. The computer restarts automatically.

➤ To complete the setup:

1. When prompted, press <**Ctrl**> + <**Alt**> + <**Del**> and log on as Administrator.
2. When the Windows Setup dialog box appears, insert the Windows Server 2003 R2 CD 2 and click **OK**.
3. On the Windows Server 2003 R2 Setup Wizard window, click **Next**.
4. Select the **I accept the terms in the license agreement** radio button and click **Next**.
5. Click **Next** again to start the installation.

NOTE

While Windows installs, the HP Installation Utility installs and configures installed HP devices. This will take several minutes.

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6. Click **Finish** when the Windows Server 2003 R2 installation is completed.
7. If the Windows Server Post-Setup Security Updates window appears, perform steps 1 and 2 described on the window, if needed, and according to your company's network security policies. Click **Finish**.

NOTE

All Microsoft Windows updates required for P2000 are installed as part of the P2000 Prerequisites.

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8. If prompted, click **Yes** to close the Windows Server Post-Setup Security Updates window.
9. The computer may restart automatically. If it restarts, when prompted, press <**Ctrl**> + <**Alt**> + <**Del**> and log on as Administrator.
10. When the Windows 2003 Manage Your Server window appears, select the **Don't display this page at logon** check box and close the window.

➤ **To change screen resolution and color display:**

1. Go to **Start**>**Control Panel**>**Display**.
2. On the Display Properties window, click the **Settings** tab.
3. Under **Screen resolution**, use the slide bar and adjust the resolution to 1024 by 768 pixels.
4. In the **Color quality** drop-down list, select **Highest (32bit)**. Click **OK**
5. When the screen appears with the new settings, click **Yes** to save them.

➤ **To change the Start menu style:**

1. Right-click the **Start** button, and then click **Properties**.
2. On the **Start Menu** tab, click one of the following options:
   - To select the default Start menu, select the **Start menu** radio button.
   - To select the style from an earlier version of Windows, select the **Classic Start menu** radio button.

NOTE

Installation beyond this point is documented using the default Start menu. If you prefer to use the Classic Start menu, the instruction steps may vary slightly.

3. To save the changes, click **OK**.

   The next time you click **Start**, the Start menu displays the new style.

Verify Hardware Configuration

Verify hardware configuration to ensure all network cards, drivers, and network-associated settings are accurate.

➤ **To verify driver and components in Device Manager:**

1. Go to **Start**>**Control Panel>System**.
2. On the System Properties window, select the **Hardware** tab.
3. Click **Device Manager**.
4. Verify that no question marks are displayed next to any components under **Other devices**. Question marks indicate that the hardware is not functioning properly.

5. To view error messages, right-click on the device and select **Properties**. Resolve all hardware problems before proceeding.
6. Restart the computer.
7. When prompted, press <**Ctrl**> + <**Alt**> + <**Del**> and log on as Administrator.

➤ **To verify hardware configuration:**

1. Select **Start>All Programs>Administrative Tools>Event Viewer**. The Event Viewer window appears.
2. In left window pane, select **System**.

   Red, stop sign icons may appear in the list, indicating installation and/or configuration errors.
3. Double-click each line item entry flagged by a stop sign and review the event detail.

   You must resolve any hardware issues prior to loading Microsoft SQL Server® or P2000 software.

   Typical errors include:

   - Network card configuration errors
   - CD ROM failure
   - Drivers not available
4. Continue with the instructions in the "Internet Information Services (IIS) and ASP.NET Installation" section.

Internet Information Services (IIS) and ASP.NET Installation

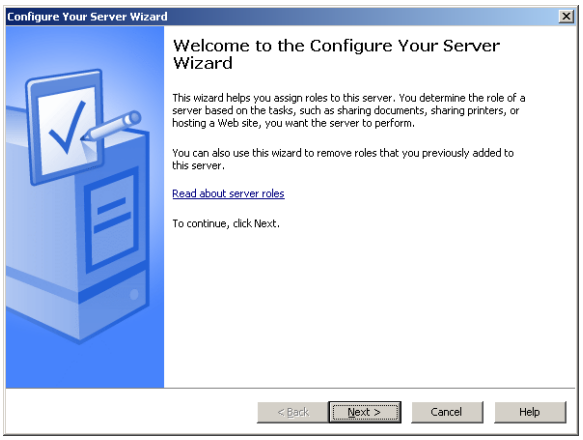
Follow the instructions in this section to configure the server as an application server. You will need:

- Microsoft Windows Server 2003 R2 CDs

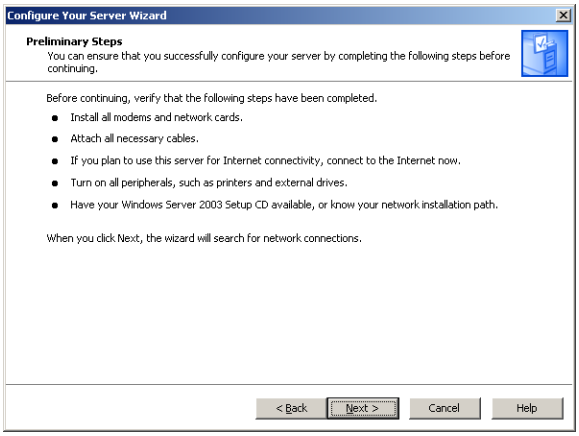
➤ **To configure the server as an application server:**

1. Log on to the Server as Administrator.
2. Go to **Start>All Programs>Administrative Tools>Configure Your Server Wizard**.

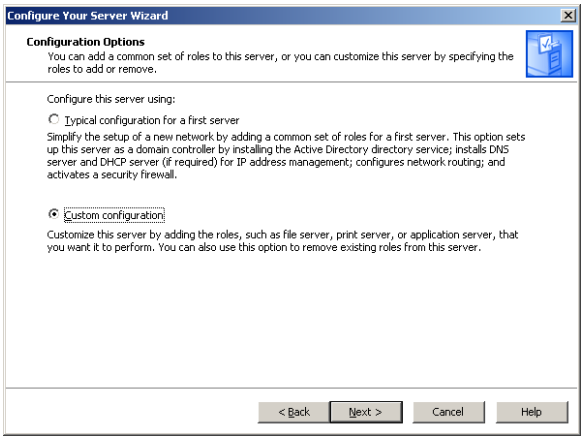
3. When the Welcome to the Configure Your Server Wizard window opens, click **Next**.



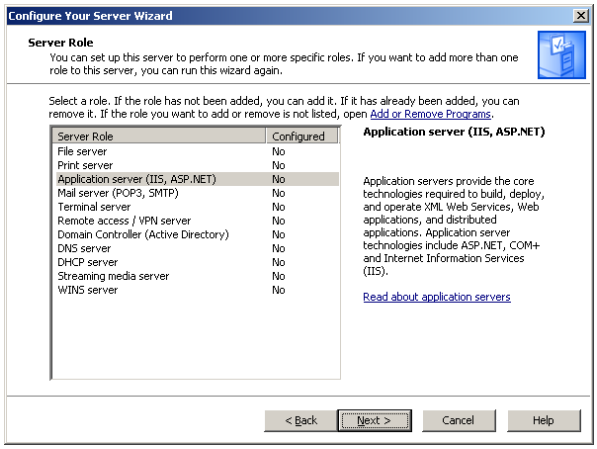
4. Verify the steps listed have been completed and click **Next**. The wizard will now detect your network settings. This may take about a minute.



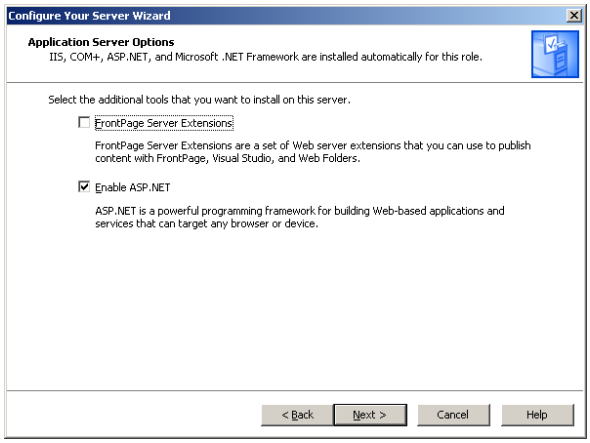
5. If the Configuration Options screen appears, select the **Custom configuration** radio button. Click **Next**.



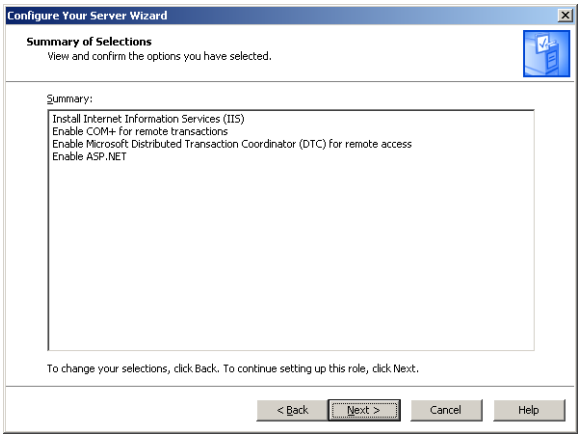
6. In the Server Role window, highlight **Application server (IIS, ASP.NET)** Click **Next**.



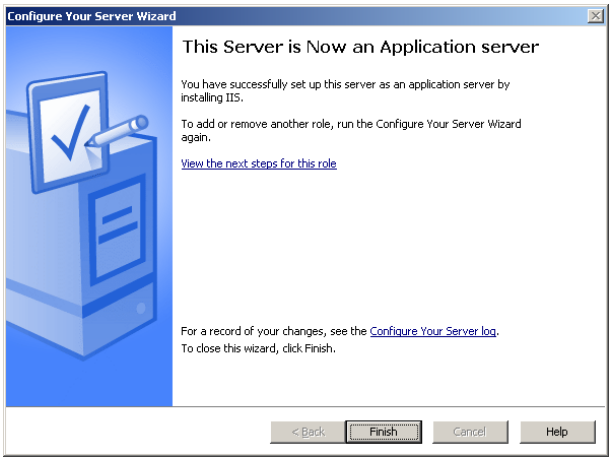
7. Under Application Server Options, select the **Enable ASP.NET** check box. Click **Next**.



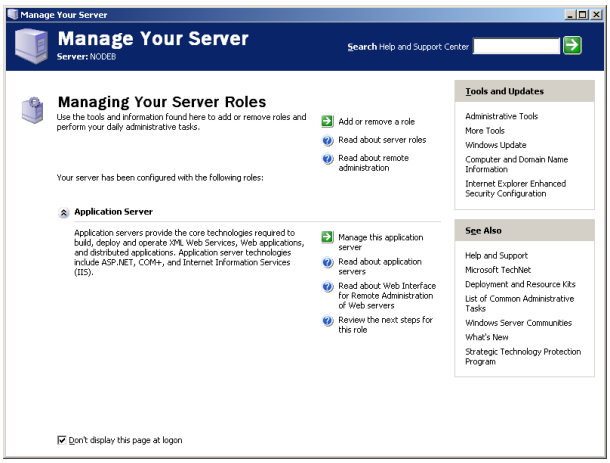
8. View and confirm the Summary of Selections options; click **Next**. The Configure Your Server Wizard will now begin adding the selected role to the server. The Applying Selection window will remain active during setup.



9. When prompted, insert the Microsoft Windows Server 2003 CD 1 and click **OK**. Windows will now copy files to the hard drive of the Primary Server and begin configuring ASP.NET and Internet Information Services.
10. When the Welcome screen for Microsoft Windows Server 2003 opens, click **Exit**.
11. When the This Server is now an Application server window appears, click **Finish** to close the wizard. The Manage Your Server window opens. Remove the Microsoft Windows Server 2003 R2 CD.



12. In the Manage your Server window, verify that under Managing Your Server Roles, Application Server is now configured on the Primary Server.



13. **Close** the Manage Your Server window.
14. Continue with the installation instructions in the *P2000AE Server/Workstation Software Installation Manual*. To avoid duplicating any effort, start with the section in the manual that proceeds the IIS installation.

GROUNDING AND CONNECTORS

This appendix gives instructions for grounding cable shields for data and low voltage installations. Follow these guidelines for electromagnetic compatibility (EMC) conformity, and consequently to improve system reliability.

- Every unit in a Johnson Controls system's installation must have its chassis connected to a verified electrical ground (earth). In all cases, the pertinent national wiring codes apply.
- The National Electrical Code NFPA 70 must be followed for installations in the USA.
- The Canadian Electrical Code, C22.1 must be followed for installations in Canada.
- BSI Standard BS7671 (latest edition) must be followed for installations in Great Britain. Additional information is given in the *Johnson Controls* Installer's Code of Practice.

Conduit ground, cold water pipes, unbrazed joints or dissimilar metals are unacceptable in the path of either building or supplemental ground. Where grounding is required, connect only to the proven building electrical system ground (earth).

DATA AND LOW VOLTAGE INSTALLATIONS

The following sections describe recommended grounding of D-type connectors, and grounding requirements in the U.S.A and in Europe. The following notes apply to all installations described in this appendix.

1. The outer cover of the cable has been stripped back to reveal the cable's screen.
2. The screen is cut back so it just enters the enclosure.

   Cables to user peripherals (printers, VDTs, and so forth) should have screens connected at both ends.
3. The drain wire that extends from the screen-type shield shown in the illustrations must be kept as short as possible (typically, 2.5 cm or 1 inch). Connect a lug to the end of the wire, as shown, and screw securely to the wall of the enclosure or nearest stud.
4. All internal ground (earth) bonding straps must be left intact after installation.
5. Check that grounding points are clean and free from paint or corrosion.

D-TYPE CONNECTORS

All D-type connectors must use an Electromagnetic Interference (EMI) shielded shroud. Ensure that a good contact is made when connecting D-type connector shrouds to cable shields.

Figure A-1 shows a critical contact throughout the 360 degrees of the cable's screen at the point of entry to the shell. To ensure a good fit, strip the cable's outside layer back to reveal the metal shield and extend the shield to the very edge of the metal shroud's connector. If the shield does not fit snugly, apply metallic tape to ensure a firm contact.

The two curved parts of the shroud are shown in Figure A-1 making contact with the flat plate of the shroud. Tighten the two remaining screws to ensure a firm fit.

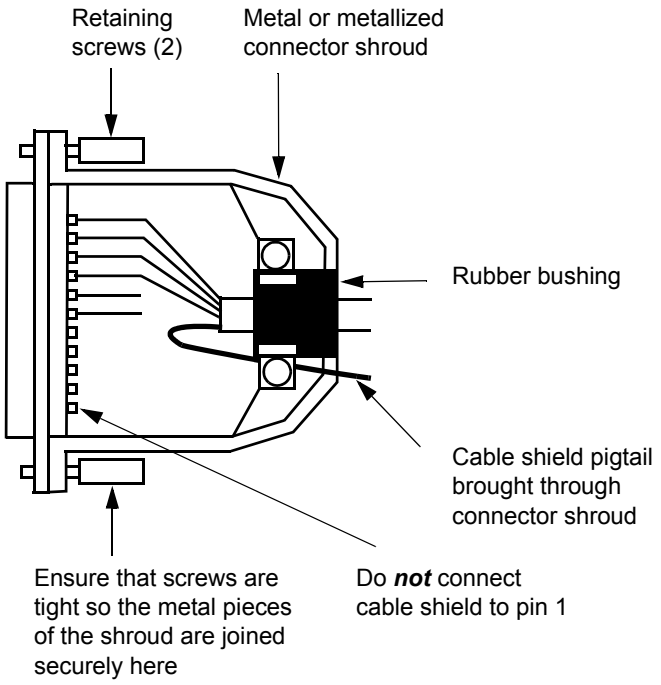


Figure A-1: Example of D-Type Connector Grounding