

AnywhereUSB[®]

REMOTE I/O CONCENTRATOR

Installation Guide



www.digi.com

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Introduction

The AnywhereUSB® Remote I/O Concentrator is the first remote networking solution to utilize USB Over IP® technology, breaking the traditional five meter distance limitation between USB device and host. Now USB devices may be located anywhere on a wired or wireless LAN – without a locally attached host PC. Since the host PC or server may be located remotely, AnywhereUSB enables devices to be deployed in harsh or non-secure environments, making it ideal for point-of-sale, kiosks, surveillance, industrial automation, or any mission-critical enterprise application. This Ethernet-attached solution provides five USB ports to connect peripheral devices such as bar-code scanners and receipt printers, as well as Digi's Watchport®/V2 USB Camera and Watchport Sensors.

Cabling AnywhereUSB

To connect the AnywhereUSB Concentrator to a network:

1. Connect a standard Ethernet network cable to your AnywhereUSB. Then connect the other end of the Ethernet cable to a 10/100 BaseT switch or hub.
2. Connect one end of the power supply* into the back of your AnywhereUSB and the other end into an AC outlet.

**Power to this product may be supplied by a UL Listed Direct Plug-In Power Unit marked "Class 2" or a UL listed power supply rated with a minimum rating of 5 V dc 2.5 A if used in the U.S. and Canada or a power supply with similar rating and approved by your local safety code if it is used elsewhere. For polarity, see the following:*



Installing the Drivers

For Windows XP, 2000 and NT4.0 Users

You must install the drivers using an account that has administrative privileges.

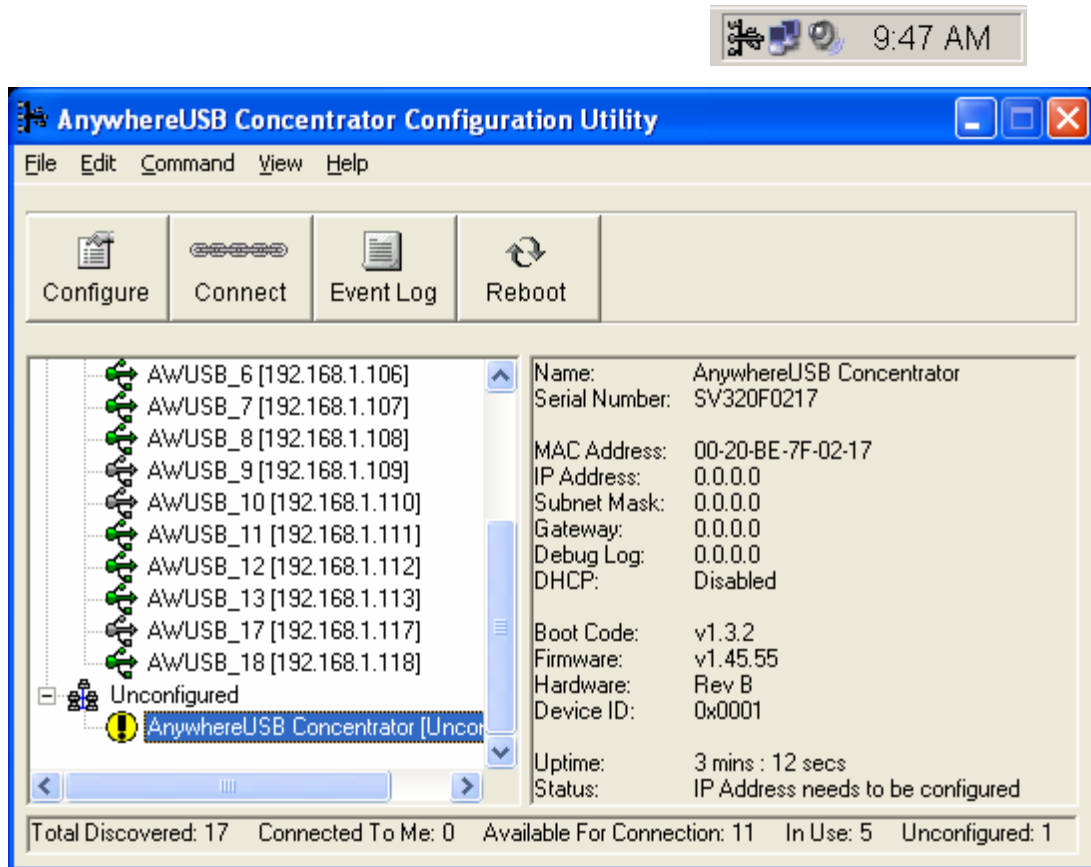
1. Insert the "AnywhereUSB Driver" CD into your CD drive. If the CD does not automatically start, then open the CD folder and double click on **AwSplash.exe**.
2. A welcome screen allows you to view and print this guide, install the drivers, and check our web site for the latest information.
3. Click the **Install Drivers** button to start the install process. Then follow the on-screen instructions to complete the installation of your AnywhereUSB Concentrator.

After installing the drivers, the AnywhereUSB Configuration Utility automatically starts so that you may configure your AnywhereUSB Concentrator.

Configuring the Concentrator

For initial configuration, the Concentrator must be connected to the same local area network as the configuration PC. In order to configure your AnywhereUSB Concentrator:

1. Launch the **AnywhereUSB Configuration Utility** from the **Start** menu. The utility displays a list of discovered AnywhereUSB Concentrators on your local subnet. A new AnywhereUSB Concentrator will have a default IP address of 0.0.0.0. You must configure the Concentrator before it can be used on a network.
2. After the AnywhereUSB Configuration Utility has been launched, it will reside in your system tray. To open the utility, click on the **AnywhereUSB** icon in the system tray. If you try to start this utility from the **Start** menu and it does not launch, check the system tray.



3. You can identify each concentrator by its IP Address. If the Concentrator is unconfigured, then the serial number can be used for identification.

Unconfigured Concentrators are listed separately. For example, the Concentrator with serial number SV320F0217 above has not yet been configured.
4. To discover Concentrators on other networks, go to “Configuring Your Host PC” on page 4 or, for more detailed information, go to “Using the Configuration Utility Program” on page 8.
5. Double click on the Concentrator or select the Concentrator and press the **Configure** button.

6. Enter a Device Name that easily identifies the Concentrator.

The image shows two identical 'Configure' windows side-by-side. Each window has a title bar with 'Configure' and a close button. The fields are as follows:

- Device Name: [Empty text box]
- Serial Number: [SV315F012D]
- MAC Address: [00-20-BE-7F-01-2D]
- IP Address: [0 . 0 . 0 . 0]
- Subnet Mask: [0 . 0 . 0 . 0]
- Default Gateway: [0 . 0 . 0 . 0]
- DHCP: [Enable selected] or [Disable selected]
- Add to connection list: [Unchecked checkbox]
- Debug Log Address: [0 . 0 . 0 . 0] (Optional. For technical support use only)

Buttons: Close, Update.

7. If desired, DHCP can be configured by selecting the **Enable** button. When DHCP is enabled the IP Address, Subnet Mask and Default Gateway fields will be grayed out. Note that if you enable DHCP, you **MUST** have a DHCP server on your network. When enabled, the AnywhereUSB device will wait indefinitely for the DHCP server to assign the IP information. If this option has been inadvertently selected and there is no DHCP server, the device can be restored by using the **AWRescue.exe** utility.

If you do not have a DHCP server or choose not to use it, select the **Disable** button and do the following:

8. Enter the IP address and Subnet Mask. Contact your Network Administrator for IP address assignment. Enter the Gateway for your network. In a network using subnets, the Gateway is the router that forwards traffic to a destination outside the subnet of the AnywhereUSB device.
9. For the changes to take effect you must click the **Update** button, which resets the Concentrator.

Reset Device

?

You will need to reset your AnywhereUSB Concentrator to complete the configuration process.

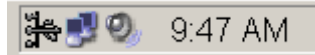
Would you like to reset the device now?

Yes No

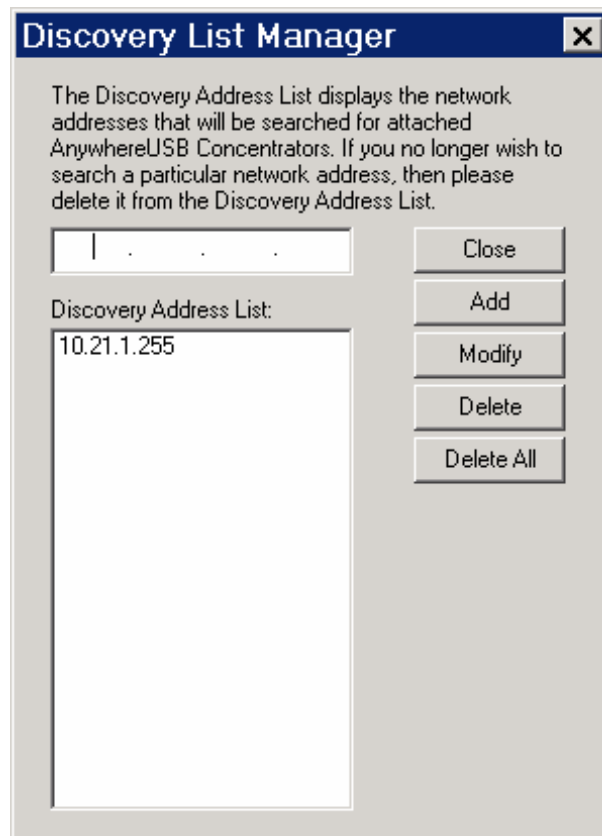
Configuring the Host PC

To configure a Host PC to access the Concentrator:

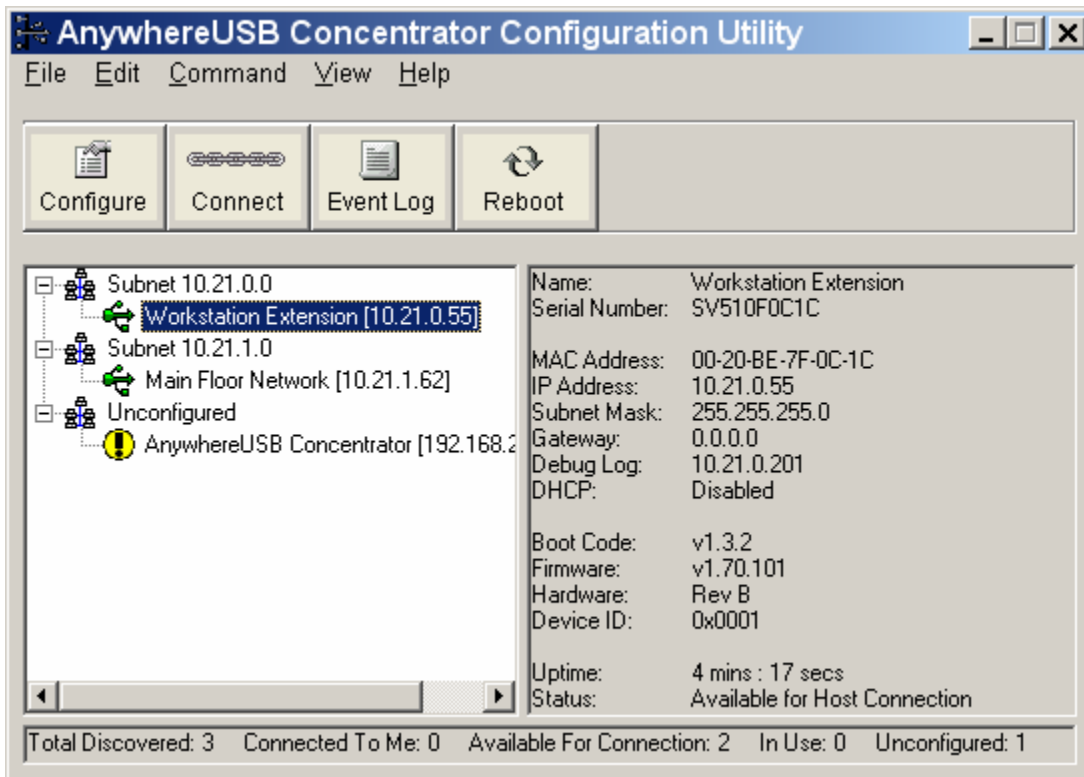
1. Launch the **AnywhereUSB Configuration Utility** from the **Start** menu. The utility displays a list of all AnywhereUSB Concentrators on your local subnet and on any subnet configured in the Discovery List.
2. After the AnywhereUSB Configuration Utility has been launched it will reside in your system tray. To open the utility, double click the **AnywhereUSB** icon in the system tray. If you try to start this utility from the **Start** menu and it does not launch, check the system tray.



3. The Configuration Utility automatically discovers Concentrators on your local subnet. To discover Concentrators on other networks, you must add their network address to the Discovery list. Select **Discovery List** from the **Edit** menu. Add the Subnet addresses or the IP address of the individual device to the Discovery List Manager. For example, to add the Class C network 10.21.x, you must enter 10.21.1.255. Note that your routers must be configured to pass subnet broadcasts.



4. When you have completed adding the subnet address to the Discovery List, click on the **Close** button to save the list. The screen will refresh within a few seconds.



5. Select a Concentrator and press the **Connect** button to add the Concentrator's IP address to the Connection List. The host computer then attempts to connect to the Concentrator. For a list of the Concentrators to which you are currently configured to connect, select **Connection List** from the **Edit** menu.
6. The Found New Hardware Wizard prompts you to search for the drivers: one time for the Remote Hub and two times each for the USB Host Controllers and the USB Root Hubs. Select the **Install software automatically (Recommended)** option and click the **Next** button. If you get the warning message indicating that the drivers have not yet passed Windows Logo Testing, click the **Continue Anyway** button.

Configuring for Firewall Support

To access an AnywhereUSB Remote I/O Concentrator that is behind a firewall:

- Your firewall must have a well known static IP address (for example 10.52.48.37).
- The Concentrator must have a static IP address on the private subnet (for example 192.168.1.10).
- Your firewall must be configured to allow TCP/IP and UDP/IP packets to pass through port 3422.
- The firewall must be configured to send these TCP/IP and UDP/IP packets directed to the IP Address of the Concentrator (in this example: 192.168.1.10).
- You must manually add the address of the firewall to the Connection List.

Note that you can access only one Concentrator through each firewall. For more information on how to configure your firewall, refer to your firewall manual.

At this point the PC will attempt to connect to the Concentrator.

If you would like Concentrator Information to be displayed in the discovery window of the configuration utility, you may add the address of the firewall into the Discovery List. Note that Concentrators behind firewalls, as displayed in the discovery window, show the IP address of their private network.

Uninstalling the Drivers

To uninstall the AnywhereUSB drivers:

1. Launch the **AnywhereUSB Configuration Utility** from the **Start** menu.
2. Select **Preferences** from the **File** menu and click on the **Uninstall** button. You must reboot your PC to complete the driver removal.

Interpreting the Status Lights

The AnywhereUSB Concentrator has six LEDs on the front panel, the System Status LED and five hub LEDs. Each LED is capable of displaying three colors: red, green, or orange.

System Status Lights

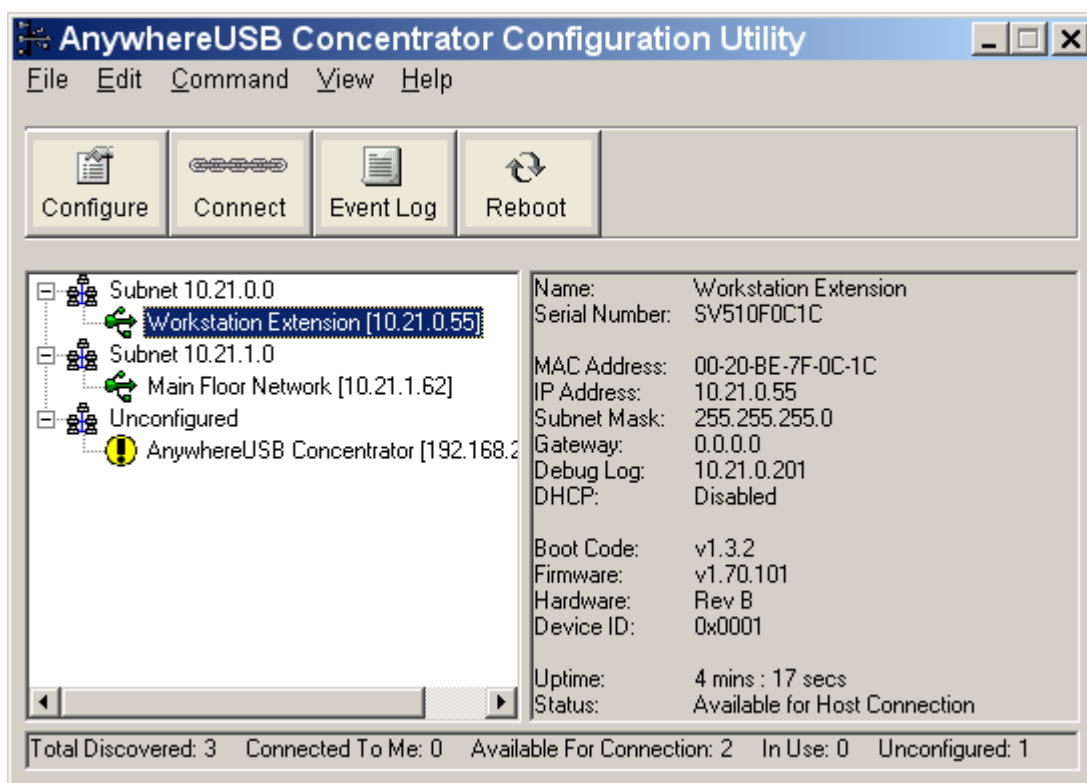
On initial power up the system status LED is orange for two seconds while the system initializes and then blinks green. If DHCP is enabled and it is first coming up, the system status light will be orange while the Concentrator searches for a DHCP server. If it cannot find one, the box will continue waiting for one. If this happens, run **AWRescue.exe**, located in **Windows/System32**, to recover your Concentrator.

Hub Lights

Green hunting pattern across all LEDs	Not connected to a host.
Orange alternating on ports 1-3-5 and 2-4	Updating image in Flash. Do not remove power from concentrator while flash is being updated. Doing so will damage your concentrator.
Solid Green	Hub port is powered.
Green over Red hunting pattern	Please call customer service.

Using the Configuration Utility Program

The AnywhereUSB Configuration Utility displays Concentrators grouped by their subnet. The Utility automatically discovers Concentrators on your local subnet. To discover Concentrators on other networks, you must add their network address to the Discovery list. Select **Discovery List** from the **Edit** menu. Add Subnet addresses to the Discovery List Manager. For example, to add the Class C network 10.21.x, you must enter 10.21.1.255. Note that your routers must be configured to pass subnet broadcasts.



Icon Color Legend:



(Green) Available for Connection



(Gray, **Bold Text**) Connected to this computer



(Gray) In use by other Host PC



(Red) Firmware is being updated.



Concentrator IP Address has not yet been configured.

Menu Options

File Menu: Preferences

Allows you to disable or modify the frequency in which the utility updates its discovered concentrator list. Enables the logging of driver events to the system event log and allows you to uninstall the drivers.

Edit Menu: Connection List

Contains the IP addresses of the AnywhereUSB concentrators to which this Host PC will try to connect. When an IP address is added to this list, the Host PC immediately tries to connect to the concentrator. If an IP address in this list is deleted, all USB devices attached to this concentrator will be removed from this Host PC.

Edit Menu: Discovery List

Contains a list of subnet addresses of remote networks or IP addresses of individual units where the configuration utility will search for AnywhereUSB concentrators.

Command Menu: Configure

Allows you to configure the TCP/IP parameters in the concentrator. You can also add this IP address to the Concentrator Connection List by checking the **Connect to this Concentrator** check box.

Command Menu: Connect

Adds the IP address of the Concentrator to the Connection List.

Command Menu: Event Log

Retrieves event information from AnywhereUSB Concentrator. Use this to gather information for Technical Support. This dialog also allows you to clear the event log.

Command Menu: Reboot

Causes the Concentrator to reboot.

View Menu: Driver Information

Displays the version numbers of the AnywhereUSB drivers and allows you to uninstall the drivers.

View Menu: Refresh (F5)

Updates the Discovered Concentrator List.

Understanding Hubs

Hubs, critical components in the plug-and-play architecture, are wiring concentrators that enable the attachment of multiple devices, thus converting a single attachment point into multiple attachment points. USB architecture allows a cascaded multiple hub configuration with certain power limitations (explained later in this section). See figure 1.

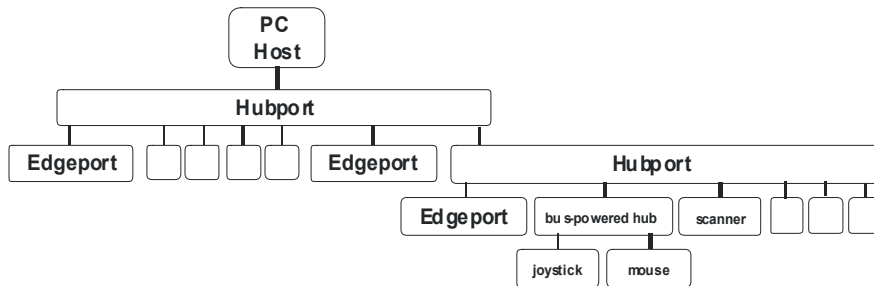


Figure 1: Example of a Typical Hub Configuration

Each hub has an upstream port, connecting to the host, and multiple downstream ports, connecting to downstream devices, including other hubs. A hub can detect attachment and detachment of downstream devices and enable and monitor the distribution of the power to downstream devices via their integral hardware and the operating system.

Each USB device reports its power requirements to the operating system, which then enables and disables the device as a function of its power requirements and the amount of available power. High-speed devices typically need to be connected to a self-powered hub, which obtains power from its external power supply and provides up to 500 mA for each downstream port. Only simple devices, such as a mouse, can be connected to a bus-powered hub, which obtains power from its upstream host and provides up to 100 mA for each downstream port.

Due to the limited available power for bus-powered hubs, cascading two bus-powered hubs is an illegal topology, and devices connected to the second hub will not function. *(USB specifications limit the connection of a bus-powered hub to a self-powered hub or host only.)*

According to the USB Specification, the maximum limit of hubs cascaded in series cannot exceed five. In other words, you may have a maximum of five hubs between any device and the host. This does NOT mean that the maximum number of hubs in a system is five. Indeed, up to seven hubs can be connected parallel *at any given level*. You must tally both external and embedded hubs when counting downstream hubs.

Regulatory and Other Information

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Federal Communications Commission (FCC) Regulatory Information (USA only)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential 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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet that is on a circuit different from the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: The connection of a non-shielded interface cable to this equipment will invalidate the FCC Certification for this device.

FCC Regulation - Part 15 Declaration of Conformity (DoC)

This device complies with the requirements of the Code of Federal Regulations listed below:

FCC Title 47 CFR, Part 15 Class B for a digital device.

Operation is subject to the following two conditions:

This device may not cause harmful interference, and

This device must accept any interference received, including interference that may cause undesired operation.

Department of Communication (DOC) Notice (Canada only)

This Class B digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouiller du Canada.

**European Community - CE Mark
Declaration of Conformity (DOC)**

According to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name:

Digi International

Manufacturer's Address:

11001 Bren Road East
Minnetonka, MN 55343

declares that the product

Product Name:

AnywhereUSB

Model Number(s):

301-1130-01

Product Options:

All

conforms to the relevant EU Directives listed here:

EMC Directive 89/336/EEC |
Low Voltage Directive 73/23/EEC
Amending Directive 93/68 EEC

using the relevant section of the following EU standards and other normative documents:

Safety:

IEC 950:1991 +A1, A2, A3, A4
EN 60950:1992 + A1, A2, A3, A4
EMC

The following summarizes the specifications and requirements for EN55024, EN55022 Class B & CISPR 22 Class B emission and immunity tests. If the actual test levels are higher or different than required, these levels are listed in the appropriate tables.

**EN 55022 Class B
(1994 w/A1 1995)**

Test	Specification EN55024	Requirement
Electrostatic Discharge	EN61000-4-2	+4 kV contact +8kV air
Radiated Immunity	EN61000-4-3	3 V/m
Electrical Fast Transient Burst	EN61000-4-4	1kV (A/C), .5kV (I/O)
Surge	EN61000-4-5	2kV common mode 1kV differential mode
Conducted Immunity	EN61000-4-6	3V rms
Magnetic Immunity	EN61000-4-8	1 A/m Not Applicable
Voltage Dips & Interrupts	EN61000-4-11	>95%, 30% & >95%

EN55024 (1998)

Test	Specification EN55022	Requirement
Radiated Emissions	—	Class B
Conducted Emissions	CISPR 22	Class B

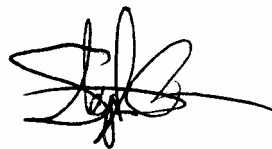
European Contact

Digi International
Joseph-von-Fraunhofer Str. 23
44227 Dortmund, GERMANY
49-231-9747-0

UL/CSA Safety Information

This device complies with the requirements of following safety standards below:

UL 1950, 3rd edition
CSA No. 950



Quality Manager
Austin, Texas
July 2006

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