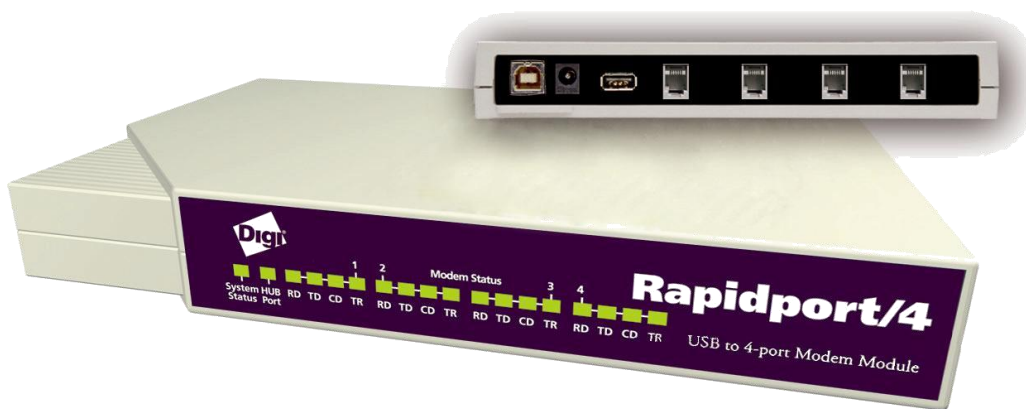


Rapidport®

USB TO 4-PORT MODEM MODULE

Installation Guide



www.digi.com

Table of Contents

Cabling Rapidport.....	1
Installing Rapidport Drivers	2
Installing the Rapidport Modems.....	3
Interpreting the Status Lights.....	3
The Edgeport Utility Program	4
Regulatory & Other Information	10

Rapidport

Rapidport offers an easy solution for remote access via Plug-and-Play USB connectivity. This external, user-installable solution plugs into the USB port of a PC, thin client or server and provides four 56K V.90 modems. EdgeUSB technology, shipping with Rapidport since 1998, adds Plug-and-Play USB compatibility to Microsoft Windows NT and Windows NT Embedded system users. The Rapidport gives network users access to Internet Service Providers (ISP), fax, and other group dial-up applications supported by Windows NT RAS.

Rapidport is a scalable solution – its onboard USB port enables additional units to be stacked and daisy-chained as modem requirements increase. The downstream port may be used to connect and power any 500mA USB peripheral device, including Edgeport USB-to-serial converters for instant I/O expansion. Its feature-rich design, extensive operating system support and reliable performance make Rapidport/4 ideal for mission critical enterprise applications.

Cabling Rapidport

To connect the cables included with your Rapidport:

- 1) Connect one end of the power supply* into the back of your Rapidport and the other end into an AC outlet.
- 2) Connect one end of the phone cord** to Port 1 on the back of the Rapidport and the other end to an analog phone jack. Repeat for up to four connections (Ports 1-4).

CAUTION: To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

3a) For a downstream connection, plug the Type A end of the USB cable into the USB port located in the back of your PC *or* into an available USB port on a standard hub *or* into a Digi International Hubport. Plug the Type B end of the USB cable into the back of the Rapidport.

3b) For an upstream connection, plug the Type A end of the USB cable into Rapidport's USB Type A slot and the Type B end of the USB cable into the upstream device (e.g. a Hubport or another Rapidport).

The cabling diagrams on page 10 show both Type A and Type B plugs and receptacles.

To install the necessary drivers, go to the "Installing Rapidport Drivers" section, which starts on this page.

*Power to this product may be supplied by a UL Listed Direct Plug-In Power Unit marked "Class 2" with a minimum rating of 5 V dc, 2.1 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, use the following:



****Safety Warning:** 1) Never install telephone wiring during a lightning storm. 2) Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations. 3) This product is to be used with UL and cUL listed computers. 4) Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface. 5) Use caution when installing or modifying telephone lines. 6) Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning. 7) Do not use the telephone to report a gas leak in the vicinity of the leak.

Installing Rapidport Drivers

For Windows XP, Server 2003, Server 2008, and Vista

Note: You must be logged into an account with administrator privileges before proceeding.

Note: Please go to www.digi.com to download software for older Operating Systems.

1. Connect the USB cable. (Refer to the Table of Contents to locate the cabling instructions for your specific Edgeport model.) If your computer is connected to the internet, the latest Microsoft certified drivers will be automatically downloaded from the Microsoft driver update server. If not, continue with step 3.
2. Insert the “Edgeport Driver” CD into your CD-ROM drive. In most cases the drivers will be automatically installed from the CD. If not, proceed with step 4.
3. When the Found New Hardware Wizard appears, select **Install from a list or specific location (Advanced)** and click **Next**.
4. Select **Search for a suitable driver for my device** and click **Next**.
5. Select **Specify a location** and click **Next**.
6. Type in <**CD drive letter**>:\drivers and click **OK**.
7. Confirm that Windows is pointing to <**CD drive letter**>:\drivers. Then click **Next**
8. Wait while Windows finishes installing the driver files and click **Finish** to complete the installation.

Your new COM port(s), numbered sequentially following the existing ports in your system, is/are ready.

Installing the Rapidport Modems

Before installing a Rapidport modem, ensure that it is connected to your PC and has power.

For Windows XP, Server 2003 Server 2008, and Vista

- 1) From the Control Panel, open Modems. (If the Modems Properties dialog appears, click **Add** in order to view the Install New Modems dialog.)
- 2) While in the Install New Modem dialog, click **Next** and wait while your system searches for new modems.
- 3) Follow the recommended on-screen instructions.
- 4) Click **Finish** to complete installation and return to the Modems Properties dialog.

Interpreting the Status Lights

Interpreting the System Status Light

- Red* This light signifies a loss of USB communication with the host. If the loss is due to unplugging the unit, when it is reconnected the light will blink red a few moments before turning green. Otherwise, the light indicates a problem with the drivers, which may need to be reinstalled. The red light will also blink during installation until the installation is complete.
- Amber* This light signifies serial port activity on the Rapidport. The yellow light may also flash briefly during installation.
- Green* This light indicates that the serial ports have been successfully set up and the Rapidport is operating normally.

Interpreting the HUB Port Status Light

- Green* When on, this light indicates that the downstream connection has power.

Interpreting the Modem Status Lights

- RD** Receive Data. This light flashes when data is sent to your computer from the modem. At high speeds light may appear continuously on.
- TD** Transmit Data. This light flashes whenever data or commands are sent to the modem from your computer.
- CD** Carrier Detect. This light indicates that the Data Carrier Detect (DCD) signal from the modem to your computer is on.
- TR** Terminal Ready. This light indicates that your computer is ready to send or receive data. It also shows the Data Terminal Ready (DTR) signal status from your computer.

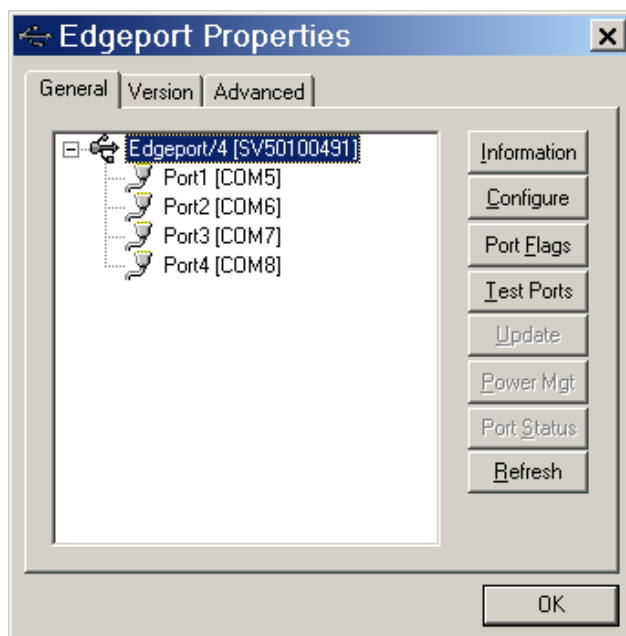
The Edgeport Utility Program

(For All Windows Operating Systems)

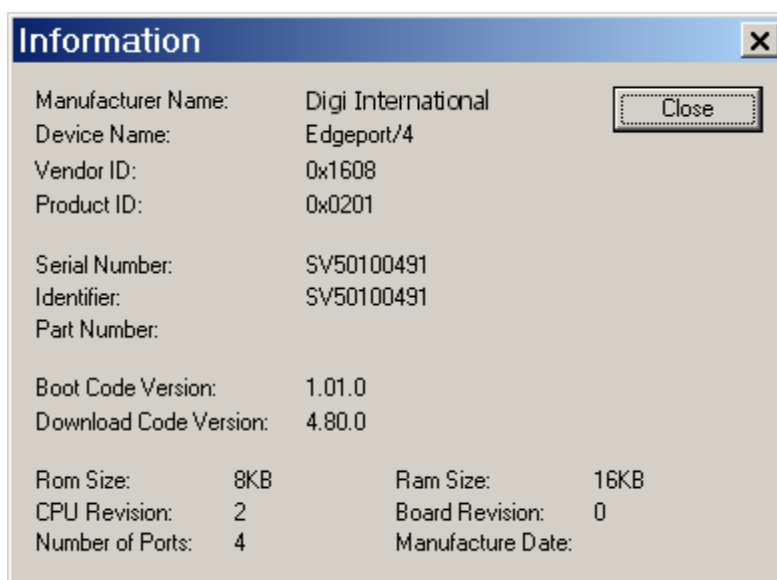
The Edgeport configuration utility program (**edgeport.exe**) allows you to manage the serial ports of your Rapidport product. Note that with Windows NT you must have administrative privileges in order to change the COM port settings. For more information, see the Support section at www.digi.com.

General Tab

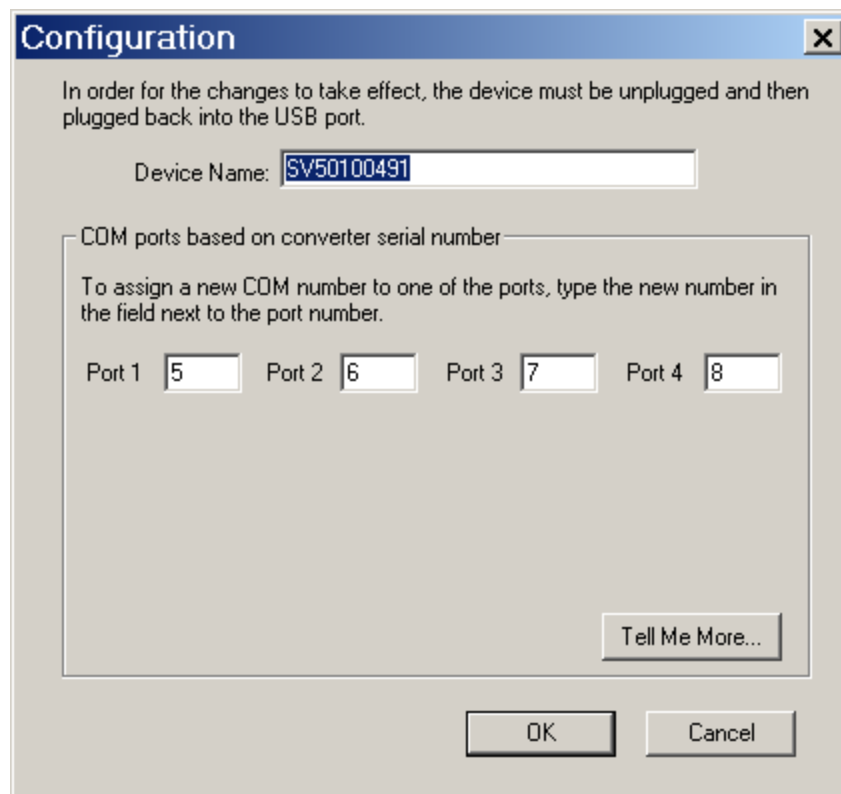
The **General** tab in this utility allows you to do the following:



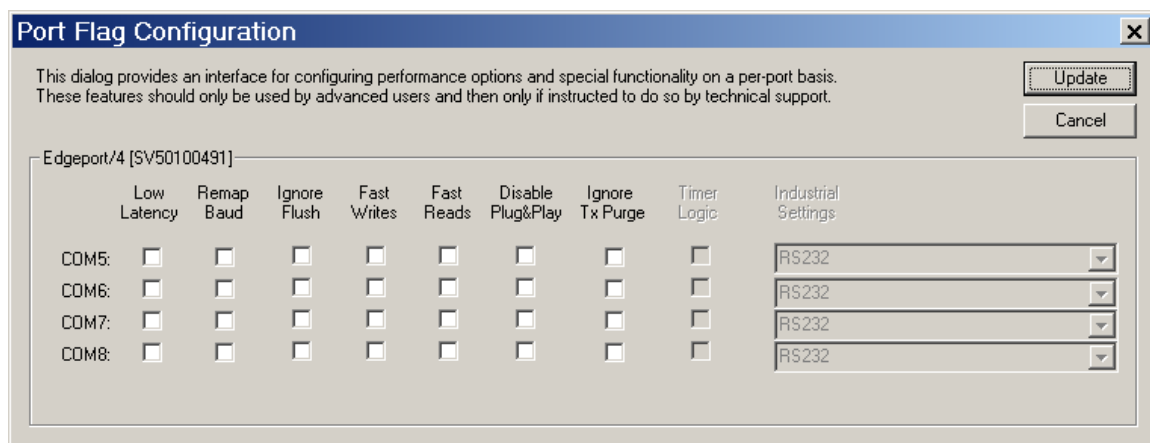
- **Information** - Check the manufacturing information pertaining to your device.



- **Configure** - Reassign the physical port on your device to any available Windows COM port number from 1 to 255 and give your device a user friendly Device Name. This capability is particularly helpful if you have more than one device.



- **Port Flags** - Configure performance options and special functionality on a per-port basis.



Low Latency: (930 based Edgeport only)

Normally the UART will interrupt when the receiver has been idle for 4 character times. (For example 4ms at 9600) As long as data is being received the UART will continue to buffer them until its internal FIFO is full (~56 bytes). This flag causes the Edgeport to poll the RX FIFO for received bytes. If any bytes are available they will be sent to the driver without any delay.

Remap Baud: (All operating systems - 930 and TI based Edgeport)

Setting the baud rate to 1200 baud will result in 230400 baud

Ignore Flush: (Windows NT/2K/XP 930 and TI)

If an application sends IRP_MJ_FLUSH_BUFFERS it will be ignored.

Excerpt from Microsoft documentation:

Drivers of devices with internal caches for data and drivers that maintain internal buffers for data must handle this request.

When Sent

Receipt of a flush request indicates that the driver should flush the device's cache or its internal buffer, or, possibly, should discard the data in its internal buffer.

Operation

The driver transfers any data currently cached in the device or held in the driver's internal buffer(s) before completing the flush request. The driver of an input-only device that buffers data internally might simply discard the currently buffered device data before completing the flush IRP, depending on the nature of its device.

Fast Writes: (All operating systems - 930 and TI based Edgeport)

When an application sends a write to the driver, by default the Edgeport driver will wait until all data has been transmitted out of the Edgeport device before completing the write. When the Fast Writes flag is set, we complete the write even if data is still buffered in the driver and the Edgeport device.

Fast Reads:

This flag is used when an application requires that a read complete immediately. In the read immediate case, the Edgeport driver will send a request to the Edgeport device asking for any buffered data to be sent up. This buffered data will be included when the read completes. If this flag is set, the driver will not query the Edgeport device for additional data.

Disable Plug & Play: (Windows 2k/XP only)

Do not let the serial port enumerator detect devices plugged into the Edgeport.

Ignore Tx Purge:

The IOCTL_SERIAL_PURGE request cancels the specified requests and deletes data from the specified buffers. The purge request can be used to cancel all read requests and write requests and to delete all data from the read buffer and the write buffer.

When the **Ignore Tx Purge** flag is set the SERIAL_PURGE_TXCLEAR command will be ignored. The function will not purge the write buffer.

Timer Logic: (Windows 9x only)

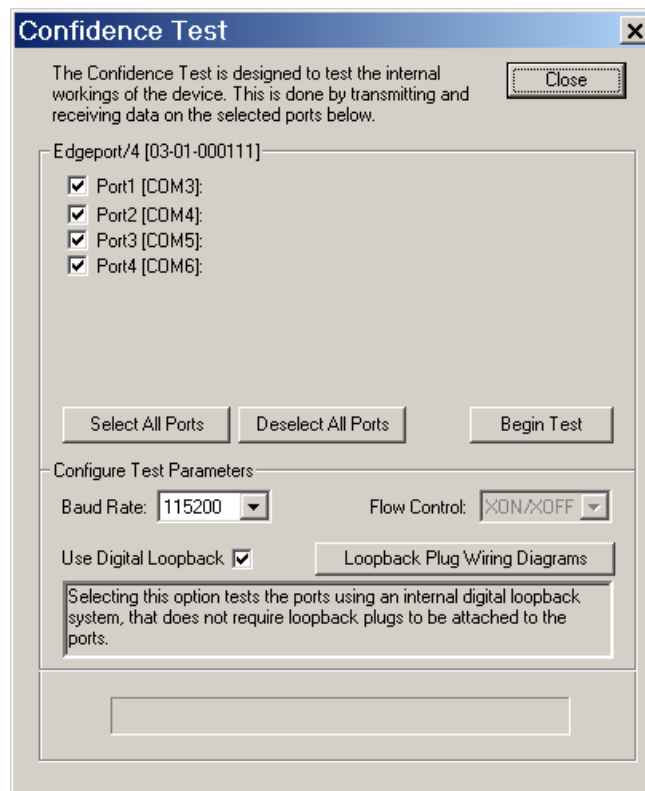
If application uses PortSetReadCallBack(), the notification routine will only be called when the number of bytes in the receive buffer is greater than the RX trigger. The Microsoft serial VxD also implements a timer that will trigger and call the notification routine if some amount of data is available in the RX buffer but no new data has been received for ~200ms (receiver is no longer active).

We do not enable this behavior by default because of the nature of Edgeport buffering. But if you set the flag we will complete the read when we detect ~200 ms no activity.

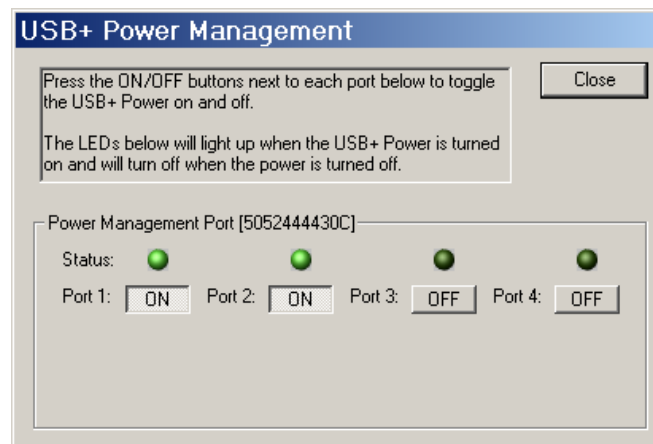
Here is a comment from the code:

If the receiver is active then do not complete this read. The problem is that the Edgeport buffers the RX bytes and we poll the driver. If we do not receive any bytes in 200ms we may report an erroneous event even if there are available bytes in the Edgeport device or driver.

- **Test Ports** - Perform a confidence test on the internal workings of the serial ports.



- **Power Management** – Turn on and off the power for Hubports with USB PlusPower ports



- **Port Status** – Provide the status of a selected (highlighted) serial port.

The image shows two side-by-side screenshots of the 'Port Status' window. The left window is titled 'Status COM4: Port Open' and shows data for 'Edgeport/1 [SA40599000] - COM4'. The right window is titled 'Status COM6: Port Closed' and shows data for 'Edgeport/4 [SV50100491] - COM6'. Both windows display status LEDs for RTS, CTS, DTR, DSR, CD, and RI. They also show transmission and reception statistics (Tx Total, Rx Total, Tx CPS, Rx CPS) and error counts (Breaks, Overruns, Parity, Framing). The left window has a 'Poll Interval' of 5 seconds, while the right window has a 'Poll Interval' of 1 second. Both windows have 'Exit' and 'Start Logging' buttons.

Port	RTS	CTS	DTR	DSR	CD	RI	Tx Total	Rx Total	Tx CPS	Rx CPS	Breaks	Overruns	Parity	Framing
COM4 (Open)	Green	Green	Green	Green	Green	Green	768256	768320	22169	22182	0	0	0	0
COM6 (Closed)	Green	Green	Green	Green	Green	Green	0	0	0	0	0	0	0	0

The Poll Interval is the number of seconds between updates of this window. This is also the number of seconds between each entry in the log file.

To create a log file, click the Start Logging button and enter a filename for the log file. This file will contain all of the information displayed in the Port Status window until the Stop Logging button is clicked.

- **Refresh** – Scan for ports. Note that NT 4.0 does not automatically scan.

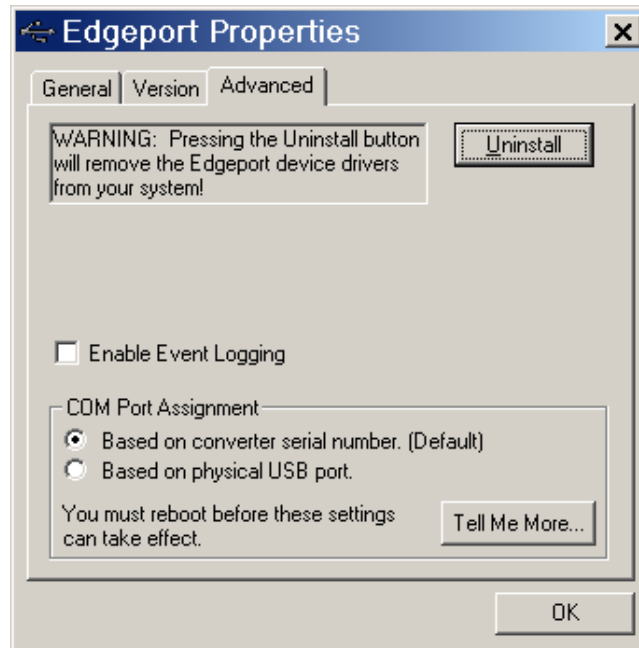
Version Tab

The **Version** tab allows you to check the file information pertaining to the software.

Advanced Tab

The **Advanced** tab allows you to do the following:

- Uninstall the drivers.
- Enable Event Logging – Place event messages in system event log.
- Configure how COM ports will be assigned.



The driver supports COM port number assignment in two ways:

1. Assign COM ports based on converter serial number.

This is the default setting. In this mode, the driver uses the serial number of each converter to uniquely identify it, and the COM port assignments for a given converter are based on its serial number. No matter which physical USB port a converter is plugged into, it will maintain its assigned COM port numbers.

2. Assign COM ports based on physical USB port.

In this mode, the driver identifies a converter based on the physical USB port it is plugged into. This effectively assigns COM port numbers to physical USB ports. No matter which converter is plugged into a given USB port, it will use the COM port numbers assigned to that USB port. This permits a converter to be replaced with a new unit, and, although the new unit has a different serial number, it will receive the same COM port assignments as the old unit because they were both plugged into the same USB port.

When using this mode, converters are identified not by their serial number, but by a 2-7 digit number that identifies which USB port it is plugged into.

After changing this setting, you will need to reboot before the change takes effect.

Regulatory & 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 USA

declares that the product

Product Name: Rapidport/4

Model Number(s):

North America	International
301-1012-04	301-2012-04

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 EN55024:1998, EN55022:1998 Class B & CISPR 22 Class B emission and immunity tests and the EN61000-3-2(2000), EN61000-3-3(1995) current harmonics and voltage variation tests. Actual test 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

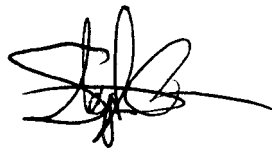
European Contact

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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