Ethernet - Token Ring

Network Router

User Manual

Connecting people and information RINGDALE

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Introduction

Ringdale's 19-inch Ethernet -Token Ring Network Router provides a solution for connecting an entire Ethernet network and an entire Token Ring network. Printers, PCs and network peripherals attached to both networks can interact with each other.

Ethernet connection is made with an RJ-45 connector, configured to allow a straight cable to run to the 10baseT Ethernet Network.

Token Ring connection is made using a type 1 cable on a 9-way DB connector or type 3 cable on an RJ-45 connector. The router has the ability to automatically sense which Token Ring connection is used as well as the Token Ring speed, at either 4MHz or 16MHz.

The router is designed to easily mount into an industry standard 19-inch rack system for convenience. The router is configured and managed remotely using Ringdale's PeripheralVision® network management software that can be installed on any Windows™ 95/98/ME/NT/XT/2000/2003 PC on the Token Ring network.

Follow the steps detailed in this manual for quick installation of the Ethernet -Token Ring Network Router.

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Installation

Front Panel Connections and LEDs
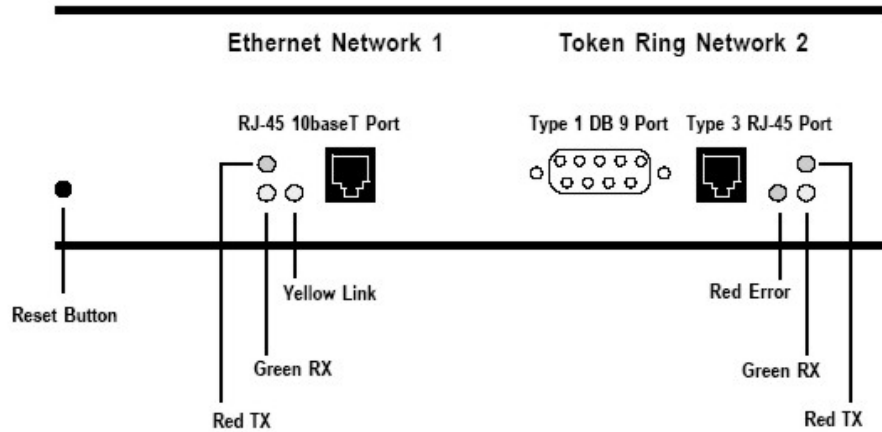
Connecting the Router to the Ethernet Network

Insert the **RJ-45 10baseT** cable from the Ethernet network into the **RJ-45** port marked **Ethernet Network 1**.

The **Green RX** LED will blink when the router receives data from the Ethernet network.

The **Red TX** LED will blink when the router transmits data to the Ethernet network.

The **Yellow Link** LED indicates that the Ethernet network connection is functioning.

Connecting the Router to the Token Ring Network

Insert *either* a **Type 3** cable with an **RJ-45** connector *or* a **Type 1** cable with a **9 way DB** connector from the Token Ring network into the **RJ-45** *or* **DB 9** port respectively marked **Token Ring Network 2**. The router will *auto-sense* which Token Ring connector is being used.

The **Red Error** LED will light when there is an error on the Token Ring network.

The **Green RX** LED will blink when the router receives data from the Token Ring network.

The **Red TX** LED will blink when the router transmits data to the Token Ring network.

Powering the Router

Connect the power cable to the **Power Supply** socket on the **Rear** panel of the router. Connect the other end of the power cable to the mains electricity supply.

Switch the router on using the **Power** switch on the rear panel.

Important Note

If there is a delay in connecting the router to the Token Ring network after power-up, it may be necessary to restart the router in order to make a good link to the Token Ring network.

When using PeripheralVision, you should see two (2) routers, each representing a different side of the router (token ring and ethernet). If you do not see two, use the Ping button to locate the second router (default 11.22.33.44 and 11.22.33.45).

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## Using PeripheralVision® to Configure the Router

Full operational procedures for PeripheralVision® are detailed in the program helpfile, refer to this if any problems are encountered in the procedure detailed below.

1. Install PeripheralVision® onto a PC on the **Ethernet Network One**.

2. Ensure the router is installed on both networks.

11.22.33.44

3. Using the **Locate NPMP®** discovery tool in PeripheralVision®, enter the default set **IP address (11.22.33.44)**. The router will appear on the network map, it will be an icon similar to the example on the left.

4. Left click twice on the icon to open the property pages of the device. The default displayed page will be the **Name** page. This is shown below:
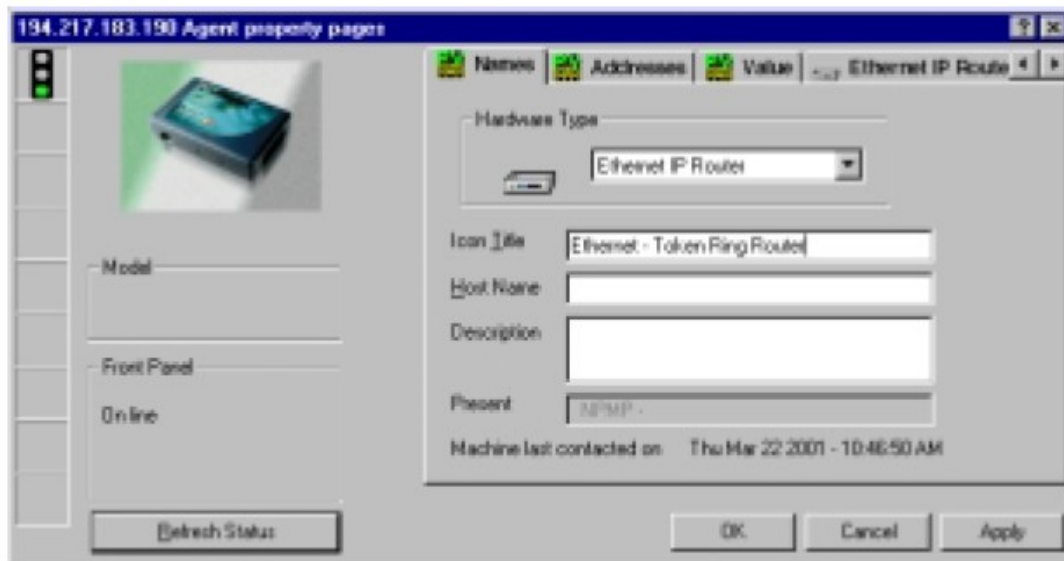
5. In the **Icon Title** field, enter a name for the router that will allow it to be identified on the PeripheralVision® network map.

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6. Using the arrows in the top right corner, scroll the pages and click the first **IP Router** page, as shown here:

The following information needs to be entered onto this page (this will be supplied by your network administrator).

IP Address Enter here the router's IP address for the **Ethernet Network 1** (this will be the gateway for all Token Ring devices).

TCP/IP Subnet Mask Enter here the subnet mask for the **Ethernet Network 1**.

Default Gateway IP Address Enter here the IP address of another router. This will allow packets for unrecognized IP addresses to be redirected to that router.

DNS Name Server Address Enter here the IP Address of the DNS server if required (optional).

Local IP Address Enter here the router's IP address for the **Token ring Network 2** (this will be the gateway for the Ethernet network).

Local IP Subnet Mask Enter here the subnet mask for the **Token ring Network 2**.

Click **Apply** to register the new information. Both networks should now communicate with the router.

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Passwords

It is strongly recommended that Passwords are set for access to all router property pages in PeripheralVision® because of the sensitive nature of the information that may be configured.

If required, access to set/change the information on the router property page may be restricted using the **Change Password** button. Click it to bring up the following window:


Enter **New Password**. **Confirm Password** and click **OK**.

Access to change the configuration will now be restricted to those who have the Password.

Routing Table Page

7. It is now necessary to tell the router where to route the IP packets. This is done by creating a Routing Table. Use the arrows to scroll the pages and select the **Routing Table** page. Make sure that the whole IP range is passed over to the other network. Any packets that are not in this range will be passed onto the *Default Gateway Address*. An example of this setup is shown in the following diagram.

To configure each route, click the **Add Route** button and enter the information as described:
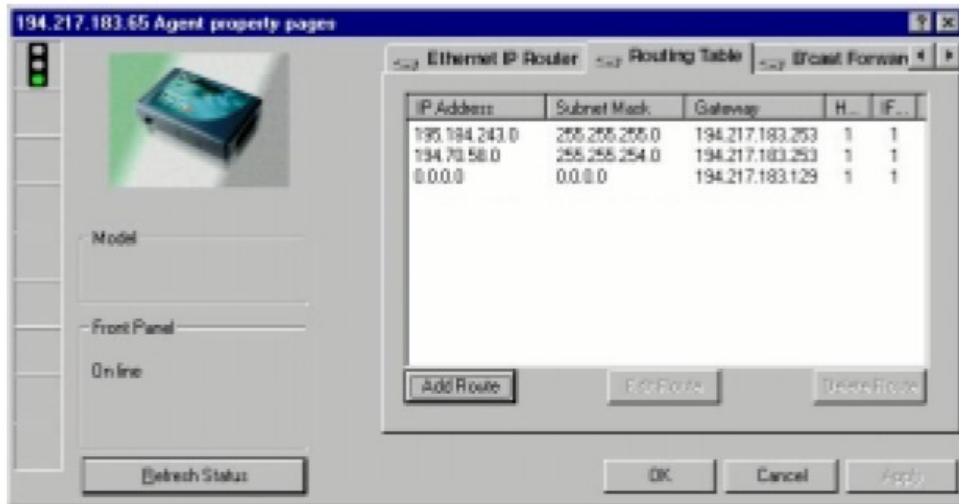
IP Address Enter here the IP address of the subnet/range you want to route to (enter a zero in the last segment of the IP address for each range).

Subnet Mask Enter here the Subnet Mask of the above IP Address, either for the Token Ring network or the Ethernet network.

Gateway Enter here the IP address of the router indicating the side of the network the above IP addresses are on (for example, if the IP addresses are on the Ethernet network, enter the address assigned to the *Local IP Address* field previously - for the Token Ring network use the address assigned to the first *IP Address* field).

H (Hops) Enter here the number of hops across networks or subnets that are necessary to route the packets to the required IP Address.

IF (Interface) Enter here the port through which the IP packets will be routed (either the *Ethernet Network 1 Port* or the *Token Ring Network 2 Port*).

Select a route from the list and click the **Edit Route** button to change the configuration of an existing route.

Select a route from the list and click the **Delete Route** button to remove a route.

Once the routes have been set up as required, click **Apply**.

8. Once the routing table is finished, ensure each separate device using the router as a gateway has the correct IP address (the one set up for it in the routing table) entered as the gateway (for example, for a PC on the Ethernet network to be able to communicate with devices on the Token Ring network, the router's *Local IP Address* will need to be entered as that PC's gateway - for a device on the Token Ring network the router's first *IP Address* will need to be the gateway).

9. To ensure the router is set up correctly, ping a device on the Token Ring network from a device on the Ethernet network. Then ping a device on the Ethernet Network from the Token Ring network.

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Broadcast Forward Page

10. The router also has the facility to forward broadcasts. Select the **B'cast Forward** page, which is shown below:
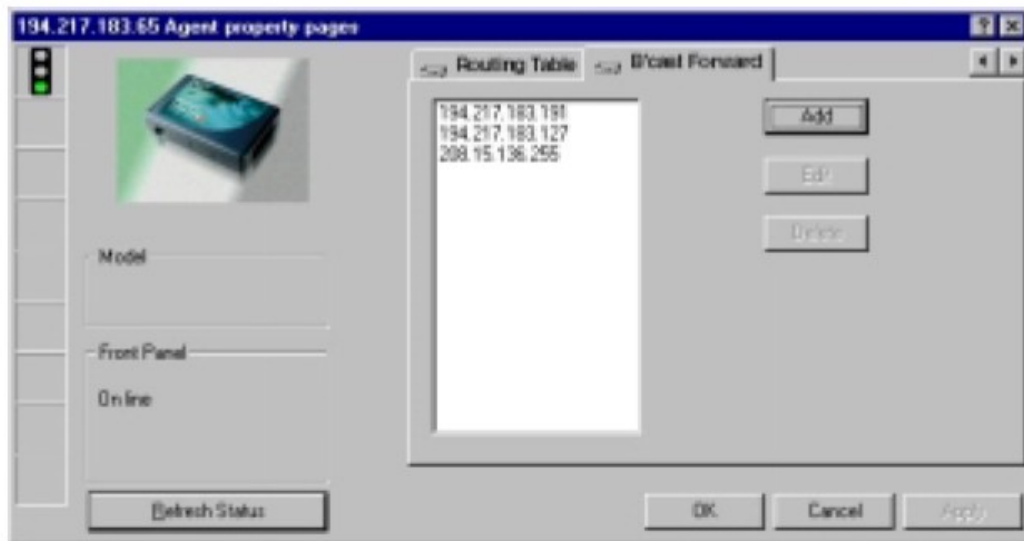
To forward a broadcast through the router to the required IP address, click **Add**.

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Enter the IP address and click **OK**. The IP address will be entered into the list.

To make changes to an IP address already on the list, click the required address to select it and then click **Edit**. This will open the above window with the IP address you wish to edit. Make the changes and click **OK**.

To delete an IP address from the list, click the required address to select it and then click **Delete**. The IP address will be removed.

Click **Apply** to save any changes you make.

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PeripheralVision® Licensing

PeripheralVision® software comes licensed for 30 days, after which a full license may be purchased to continue access to all the facilities of the program.

This does not affect your ability to use PeripheralVision® to configure the router.

These features are operational whether the software is licensed or not.

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Token Ring Speed Settings

The router will *auto-sense* the Token Ring speed of 4MHz or 16MHz. This is the default setting.

In exceptional circumstances it may be necessary to manually set the Token Ring speed.

To do this, unscrew the casing of the unit (ensuring it is disconnected from the power supply) The Token Ring speed pins are located on the circuit board and are easily identified by a red jumper. The layout is shown in the diagram below.
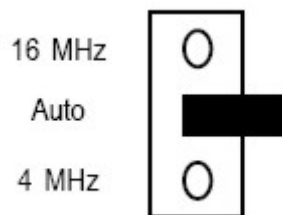
The red jumper will be over the **Auto** pin only, enabling the router to select 16MHz or 4MHz as required. To set one speed only, remove the jumper and replace it over the **Auto** pin *and* the pin of the speed you wish to set, as shown in the diagrams below.

After the setting has been selected, replace the casing and the router will operate only to the speed selected.

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Safety and Location Advice

The device is designed to operate in a typical office environment. Choose a site that is:

Well ventilated and away from sources of heat including direct sunlight.

Away from sources of vibration or physical shock.

Isolated from strong electromagnetic fields produced by electrical devices.

Provided with a properly grounded wall outlet.

Do not attempt to modify or use the supplied AC power cord if it is not the exact type required.

Ensure that the system is disconnected from its power source and from all telecommunications links, networks, or modem lines whenever the chassis cover is to be removed.

Do not operate the system with the cover removed.

Do not use in a damp environment.

Technical Specification

Mains supply: Input:	90..240 volts AC
Frequency:	50..60Hz
Power:	3 watts typical
Power Consumption:	<950mA
Processor:	High Performance CPU - AB68033
ROM:	Flash EPROM: 256K X 8
RAM:	128K X 8 static RAM
Token Ring Connectors: (Network 2)	Type 1 DB9, Type 3 RJ-45
Ethernet Connector: (Network 1)	RJ-45 type
Communication Speed: 10 Mbits (Ethernet)	4/16 Mbit/s (Token Ring)
Operating Environment:	Temperature: 10°C to 35°C (50°F to 95°F)
Relative Humidity:	15% to 70%
Part No:	00-03-2328-2450

Note: *specifications are subject to change without notice.*

Troubleshooting Guide

Symptom	Poss. Cause	Action
LEDs do not flash at power-up	Power switched off	Switch on
	Power cord not connected	Plug in Router
	Fuse defect	Replace fuse
LEDs do not light up/blink	No cable inserted	Connect to hubs and Router
	Router not powered up	Check power supply for Router
	Wrong cable type	Verify cable selection
	Bad cable	Replace cable
	Delay in connecting Router to Token Ring device	Power off and power on again

Ringdale Ltd
56 Victoria Road
Burgess Hill
West Sussex
RH15 9LR
United Kingdom

Freephone: 0800 214503
Tel: +44 (0) 1444 871349
Fax: +44 (0) 1444 870228

Ringdale GmbH
Cochemer Straße 12-14
D-68309 Mannheim
Germany

Freephone: 0800 - 8251880
Tel: +49 (0) 621 7186-0
Fax: +49 (0) 621 7186-20

Ringdale Inc
101 Halmar Cove
Georgetown, Texas 78628
USA

Toll free: 888 288 9080
Tel: +1 512 288 9080
Fax: +1 512 288 7210

Website: http://www.ringdale.com

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