IBM technology in a new, feature-filled Token-Ring stackable hub

IBM 8239 Token-Ring Stackable Hub

Highlights

Offers two models allowing you a choice of device and network management

Provides 16 ports on each hub, plus a slot for an additional 16 ports when you need them

Allows up to eight hubs in a single stack — all in one place or in a number of locations

Enables stacks to be segmented, from 1 to 8 LAN segments per stack

Works well in a variety of SNMP-based network management products from IBM and other vendors

Uses RMON and RMON2 in the Model 001 to provide analysis and trending for superior network management, plus beacon recovery and address-to-port mapping

Provides event-driven Token-Ring fault isolation through Token-Ring media management

Integrates with non-8239 Token-Ring hubs and concentrators using copper or fiber RI/RO connections (Model 001 only)

Supports fanout devices, such as the IBM 8228 or 8226, to allow a port to serve up to eight attaching devices over a single cable

Fits well in small offices and large enterprises—wherever cost-effective, well-managed Token-Ring access is required



IBM 8239 Token-Ring Stackable Hub

The IBM 8239 Token-Ring Stackable Hub is the latest result of over 15 years of experience in designing and manufacturing industry-leading Token-Ring solutions. This highly functional hub is modular so that it is adaptable to a large number of environments—from small offices and branch offices to large establishments that rely on shared-media Token-Ring for a robust desktop solution. This is Token-Ring technology from the company where it all started—IBM.

Two models to match your management needs

Both models of the 8239 support out-of-band management through their EIA-232 ports. If you require in-band management, enhanced device management functions such as time-of-day scripts and single-command code update for Model 001s and Model 002s in the same stack, you should include at least one Model 001 in each stack. The Model 001 also supports Token-Ring media management, higher level protocol monitoring and RMON and RMON2. Together these capabilities prevent trouble before it starts by identifying suspect adapters in the network and help you analyze network performance trends and retune the network before performance becomes substandard.

Because the 8239 stack can contain a mix of Model 001s and Model 002s, device and network management functions can be distributed among the hubs to improve availability and reduce the risk of a single point of failure.

Device management features
All hubs in the stack are manageable from a single point using out-of-band access (both models) or in-band access (Model 001 only).

New code can be loaded on the hub out-of-band using Xmodem and in-band using TFTP. When one model in a stack is loaded, all other similar models are also loaded. In addition, Model 001s will also update Model 002s in the same stack.

The 8239 uses ASCII script files containing 8239 terminal interface commands to provide network administrators with an easy method of configuring the stack or issuing frequently used commands. The Model 001 can trigger such commands to be executed on a time-of-day or RMON event basis.

Port Security is maintained at configuration time by specifying which MAC addresses are permitted on each port and what action will be taken if there is a security intrusion. When events occur on the network or the hub that may affect operation, the 8239 can send a trap message to the network administrator's MAC address informing the administrator of the event.

Network management features
A Model 001 is required to support network management functions. Network management information is accessed either through the terminal interface or through an SNMP-compatible application.

The Model 001 also contains an embedded agent for Token-Ring media management that reports operational status and configuration information about adapters on the same LAN segment as the 8239. The Model 001's Surrogate Agent supports ring error monitoring, ring parameter server and configuration report server. You can obtain surrogate information from the 8239 through the terminal interface or an SNMP management application.

The Model 001 fully supports IETF RFC 1757 and IETF RFC 1513 RMON groups for Token Ring. You can also configure the Model 001 as an RMON2 agent (IETF RFC 2021 and RFC 2074) or as an ECAM agent to enable extensive higher level protocol monitoring and analysis. RFC 1748 support provides network management information about the hub's Token-Ring interface.

Support for a wide variety of cabling types at industry-maximum distances
The 8239 offers superior flexibility in its cabling options—from its industry-standard intrastack Category 5 UTP to its support for all common twisted pair types for hub-to-desktop cables. All device ports have IBM's active redrive technology. And both copper and optical fiber RI/RO modules are available to include other hubs in the segment. The 8239 makes it easy to get connected without having to install new building cabling.

Intrastack cabling
Up to eight 8239s can be linked together to form a single segment using industry-standard, TIA/EIA/ANSI 568A or ISO/IEC 11801 Category 5 cables and connectors. Each of the units in the stack can be up to 25 m (82 ft) apart without regard to the total distance among all 8239s in the stack. If distances over 25 m (82 ft) are required, they are supported provided that the sum of all of the intrastack cable lengths minus the length of the shortest intrastack cable does not exceed 210 m (689 ft).

Hub-to-desktop cabling
8239 ports are compatible with all categories and types of copper twisted-pair cabling at both 4 and 16 Mbps. Any twisted-pair cabling system installed to meet the widely followed standards for TIA/EIA/ANSI 568A or ISO/IEC 11801 will easily meet the cabling requirements for 8239 port connections. In fact, the 8239 easily exceeds the 100 m (328 ft) horizontal cabling distances specified in both these standards.

RI/RO cabling
The following distances apply for each RO-to-RI connection when both devices provide for IEEE 802.5-standard repeating at the RI and RO ports. If passive, non-repeating devices are included between powered, repeating components, allowance must be made for the signal loss incurred by these hubs.

Hub-to-desktop cabling requirements

Cable Type	4-Mbps Ring Speed	16-Mbps Ring Speed
UTP, ScTP or FTP Category 3	250 m (820 ft)	100 m (328 ft)
UTP, ScTP or FTP Category 4	425 m (1394 ft)	210 m (689 ft)
UTP, ScTP or FTP Category 5	425 m (1394 ft)	225 m (738 ft)
STP or STP-A	750 m (2460 ft)	375 m (1230 ft)

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62.5/125 multimode optical fiber	2000 m (6562 ft) or 11 dB	2000 m (6562 ft) or 11 dB

Switch or share—which way to go?

Network planners and administrators face a rich variety of options as they search for the best connectivity solution for their Token-Ring users. When should you move to a switched solution? Where do you need high-speed Token Ring? Do you need a single protocol hub or a multifunction, multiprotocol switching hub in the telecommunications closet? Should you switch at the backbone and microsegment desktop LANs to improve performance?

If your desktop LANs are running traditional client/server applications, expand your network by choosing a shared-media solution like the 8239 to provide excellent flexibility and manageability at an affordable price. In small offices, you can buy just the number of ports you need in increments of 16.

In larger environments, the flexible configurations of the 8239 integrate easily with existing Token-Ring hubs through the 8239 Model 001's optional copper or fiber RI/RO ports. In addition, the 8239's ability to attach fanout devices such as IBM 8228s or 8226s to a single lobe and provide connectivity for up to eight users per port helps you protect your equipment investment.

Finally, a stack of 8239 hubs could be segmented, at the hub level, from 1 to 8 segments, up to the maximum number of 8 hubs per stack. In networks where switching or dedicated bandwidth is not present, segmentation in a hub is a viable alternative for separating traffic. The 8239 enables you to segment a single LAN into multiple LANs while maintaining stack management of all the hubs that make up the stack.

While high-speed Token Ring is an excellent solution for the backbone, most desktop environments are not sufficiently out of bandwidth to warrant swapping adapters and hubs throughout their LANs. So consider high-speed Token Ring for backbones to connect both shared and switched-media Token Rings to servers that are directly attached to the backbone.

The 8239 offers many or more of the same network management features as multifunction switching hubs but at a much lower price per port. So, if all your desktop LANs are Token Ring, the 8239's high performance and low cost-per-port make it an attractive choice.

Features	*Benefits*
IBM Technology	IBM has been designing and manufacturing Token-Ring products longer than any other company, so you can be sure that the 8239 will fit seamlessly into your existing Token Rings and provide the most effective features in the field.
Two models	The two models not only let you choose the amount of network and device management you want, they allow you to mix and match within a stack to distribute network and device management among the Model 001s and 002s in the stack. Distributed management reduces the risk of a single point of failure.
IEEE 802.5 compliant	Your 8239 will work effectively with all other 802.5-compliant components from IBM and other vendors.
Modular design	The 8239 allows you to purchase ports in increments of 16, so you buy only what you need.

IBM Token-Ring Stackable Hub at a glance	
Models	001, 002
Part numbers	08L3033: Model 001 - NA, LA 08L3313: Model 001 - EMEA, AP 08L3034: Model 002 - NA, LA 08L3314: Model 002 - EMEA, AP 08L3035: 16-port expansion feature 08L3036: RJ-45 RI/RO module 08L3037: Optical fiber RI/RO module
Stacks	Can consist of 1 to 8 hubs, any combination of Models 1 and 2.
LAN segments	Default is a single segment. From 1 to 8 segments can be created.
Ports	RJ-45 active redrive ports: 16 fixed, 16 field-installable, up to 256 per stack. Copper RI/RO are RJ-45; optical fiber RI/RO have ST connectors.
Network Management Applications	*For graphical device (element) management:* • IBM Nways® Workgroup Manager for Windows NT Version 1.1.2 or higher • IBM Nways Manager for AIX® Version 1.2.2 or higher—Campus Manager LAN component • IBM Nways Manager for HP-UX Version 1.2 or higher —Element Manager component *For remote network monitoring (RMON/RMON2/ECAM):* • IBM Nways Workgroup Remote Monitor for Windows NT Version 1.1 or higher • IBM Nways Manager for AIX Version 1.2 or higher—Remote Monitor and Traffic Monitor components • IBM Nways Manager for HP-UX Version 1.2 or higher—Remote Monitor component *For media management using the IBM Token-Ring Surrogate MIB:* • IBM Nways Manager for AIX Version 1.2.2 or higher—Campus Manager LAN component
Physical specifications	Height: 63 mm (2.5 in.) Width: 437 mm (17.2 in.) Depth: 427 mm (16.8 in.) Weight: 7 kg (15.4 lb) empty; 7.4 kg (16.4 lb) fully loaded

IBM Token-Ring Stackable Hub at a glance continued

Power	• The internal, auto-ranging power supply supports standard voltages throughout the world. • The nominal input voltage and frequency ranges are 88 to 265 V ac and 47 to 63 Hz, respectively. Maximum power consumption is 85 W.
Operating environment	Operating temperature: 10° to 40°C (50° to 104°F) Storage temperature: -40° to 60°C (-40° to 140°F) Relative humidity: 20 to 85% Operating clearances: Front: Adequate space for viewing LEDs Sides: 51 mm (2 in.) Rear: 130 mm (5 in.) for cables
Standards	Conforms to IEEE 802.5 Token-Ring shared-media standards
Cabling supported	100- or 120-ohm unshielded twisted pair, 150-ohm shielded twisted pair, or 100-ohm screened twisted pair (ScTP) or foiled twisted pair (FTP) as specified in TIA/EIA/ANSI 568A or ISO IEC 11801.
Installation	Either tabletop or rack-mounted in a standard, EIA-compliant, open 19-in. rack Do not mount the 8239 vertically.
Publications	The 8239 *Token-Ring Stackable Hub Setup and User's Guide* and the *8239 Command Reference* are included on the 8239 CD-ROM and also at *www.networking.ibm.com/239/239prod*
Warranty	1 year
Year 2000	The IBM 8239 Token-Ring Stackable Hub is Year 2000 ready when used in accordance with its associated documentation and is capable of correctly processing, providing and receiving data within and between the 20th and 21st centuries, provided all other hardware, software, and/or firmware used with the product properly exchange accurate data with it.
ISO 9000	The IBM 8239 Token-Ring Stackable Hub was developed and is manufactured by IBM under a registered ISO 9000 quality management system.

For more information

To find out more about the IBM 8239 Token-Ring Stackable Hub and other high-performance IBM communications and networking products, contact your IBM representative or call IBM Direct at 1 800 IBM-CALL (1 800 426-2255). You can also obtain information from the IBM Networking Home Page at *www.networking.ibm.com*.



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