

*Cost-effective, yet power router solution*



# IBM 2210 Nways Multiprotocol Router

## Highlights

**Provides secure exchange of keys with Internet Key Exchange (IKE) for IP Security (IPSec)**

**Supports PPP traffic encapsulation with Point-to-Point Tunneling Protocol (PPTP) or Layer 2 Forwarding (L2F)**

**Offers enhancements to IPv4 with generic route policy and IPv6**

**Improves bandwidth usage for IPv4 with Differentiated Services (DS) for PPP or frame-relay networks**

**DHCP Server support for LAN and dynamic IP address assignment provide increased support on connections to ISPs**

**VPN-ready software, including IPSec, provide secure connections over the Internet at lower operating costs**

**Enterprise Extender provides SNA users with higher session availability over a TCP/IP network: Superior to DLSw**

**Management software includes the industry's first Layer 2 Tunneling Protocol (L2TP) support for enhanced multiprotocol network security**

**Connectivity options for North America include two V.34 modem adapters with 4 or 8 integrated modems per adapter for analog data transmission speeds up to 33.6 Kbps**

**Integrated DIALs remote LAN access functions and standard router functions offer a single integrated solution**

**Branch Extender function enlarges APPN networks to thousands of nodes**

**Load balancing and high availability provided by the proven technology of eNetwork Network Dispatcher**

**Native bridging and native APPN/HPR to exploit ATM**

**Enables you to deploy software and configuration updates to thousands of routers from your Web browser**

**Offers NHRP-configurable QoS for LAN emulation and new redundancy mechanisms to improve your ATM network**

**Two Quad BRI adapters allow 4 ISDN BRI ports on a single 2210 to reduce the high-speed tariff rates**

**ISDN PRI, 25-Mbps ATM, 4- and 8-port WAN concentration adapters consolidate varied network architectures on a single router**

**Routing protocol support includes IP, IPX, AppleTalk, Banyan VINES, DECnet IV and DECnet V/OSI**

**New VPN management application—Nways VPN Manager—monitors security and Quality of Service (QoS)**



IBM 2210 Nways Multiprotocol Router Model 14T

## Scalable, affordable routing solutions for multiprotocol network architectures

### IBM's powerful, scalable routing solutions

The IBM 2210 Nways® Multiprotocol Routers provide network-computing solutions for a range of applications. Offering connectivity and multiprotocol support to work with everything from a small local area network (LAN) to a large Transmission Control Protocol/Internet Protocol (TCP/IP)-based wide area network (WAN), the 2210 Nways Multiprotocol Routers can be tailored to your network-computing needs. While offering the scalability to grow to meet tomorrow's networking demands, the 2210 can be configured to work within the limits of today's budget and still provide optimized computing across a broad range of remote locations, branch offices and regional sites.

The entry-level models—the 1S4, 1S8, 1U4 and 1U8—are well suited to the demands of small-business networking. They offer one Ethernet port for LAN architectures and either one serial WAN port or one ISDN BRI port (or allow concurrent serial WAN with a single ISDN B+D channel).

The intermediate models—the 12T, 12E, 127 and 128—offer one Ethernet or Token-Ring LAN port and two serial WAN ports to support medium-sized businesses and larger branch offices. Some midrange models also provide a single ISDN BRI port.

The higher-end models—the 14T, 24T, 24E and 24M—double the connectivity and performance of other 2210 models. They can be configured with up to two LAN ports and four serial WAN ports to provide connectivity for large branch offices and regional locations. These 2210 models also include one open adapter slot that supports the following adapters: 4- or 8-port Dial Access Adapter, ISDN BRI, ISDN Quad BRI (S/T or U interfaces), ISDN PRI, channelized T1/E1/J1, 25-Mbps ATM or 4- or 8-port WAN concentration.

### IBM Nways Multiprotocol Routing Services—VPN security in robust networking software

IBM Nways Multiprotocol Routing Services (MRS) Version 3.3 software provides a comprehensive set of multiprotocol routing and VPN functions for the IBM 2210 Nways Multiprotocol Router. Support for these new functions depends on the memory capacity of the individual models. MRS maximizes the power of your existing network and opens up connectivity possibilities to keep pace with upcoming network expansions. Nways MRS is preloaded on the 2210 at the time of manufacture and includes a Configuration Program to assist in deploying the 2210 router. The Configuration Program supports AIX® Version 3 Release 2.5, AIX windows®, Microsoft® Windows® 3.1 and IBM OS/2®.

72H5062 ISDN Quad BRI



55H7489 8-port WAN Concentrator

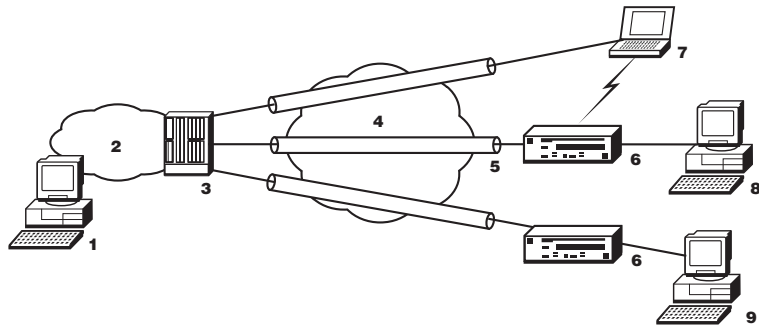


72H5033 4-port Dial Access



Virtual private networks allow secure transmission over TCP/IP (IPSec) and multiprotocol (L2TP) networks

1. Enterprise workstation
2. Enterprise intranet
3. 2212 Access Utility/ 2216 Nways Multiaccess Connector
4. TCP/IP network
5. Secure transmission tunnels (IPSec, L2TP)
6. 2210 Nways Multiprotocol Router
7. Remote/mobile user
8. Branch-office desktop user
9. Supplier/vendor desktop user



IBM Nways MRS provides security, scalability and availability. Look to IBM Nways MRS to handle enterprise-wide switching, distributed routing, bridging and LAN emulation. Nways MRS software is also engineered to enable the use of virtual private networks for cost-conscious, high-performance networking on public IP backbones.

Virtual private networks can be deployed as an extension of your corporate intranet across a public network to create a secure connection through an encrypted "tunnel." Once built, virtual private networks use TCP/IP-based networks, such as the Internet, as dedicated transmission lines, offering encryption, packet-switching, and firewall technologies that prevent unauthorized access. The VPN functions have been enhanced to include:

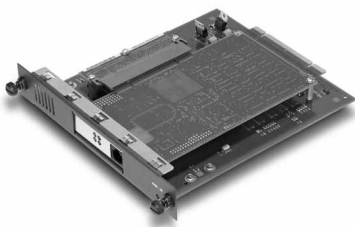
- Internet Key Exchange (IKE), which provides for automatically setting up security associations and managing cryptographic keys. This function ensures that the VPN policy will be conveniently and accurately implemented throughout the extended network with little manual configuration.
- Lightweight Directory Access Protocol (LDAP), which enables configuration and managing network policies in a central directory server by an administrator. Additional VPN functions like RSVP, IP filters, IPSec and DS information can be configured for multiple devices across the network.
- Differentiation Services (DS), which provides expedited and assured forwarding services for faster transmission for IPv4 packets over PPP or frame-relay links.
- Point-to-Point Tunneling Protocol (PPTP), which carries PPP traffic across an IP network to support VPNs.

IBM envisions three broad applications for virtual private network technology:

- For the remote user who needs access to the corporate intranet from remote locations, using the Internet or another TCP/IP network
- For branch office connection to a central corporate intranet without leasing or installing dedicated optical-fiber, copper or coaxial cable
- For business partners or suppliers who need access to internal corporate data without the benefit of a trusted, dedicated connection

In all three applications, virtual private networks use the Internet for secure connectivity and data transfer. Encryption is used for packet transmission, and hosts use firewall technologies to prevent unauthorized access. Most importantly, based on research conducted by Infonetics Research, Inc., virtual private networks can reduce WAN networking costs by as much as 20 to 47% and remote access networking costs by as much as 60 to 80%.

41H9100 25-Mbps ATM



41H7150 T1/J1 ISDN PRI



72H5034 8-port Dial Access



### Hardware and software for dependable routing solutions

When equipped with one of the many available ISDN adapters, the 2210 Nways Multiprotocol Router and Nways MRS are dependable ISDN solutions. The Quad BRI adapter offers increased bandwidth and provides backup capability without requiring more expensive Primary Rate ISDN (PRI) service. With the Point-to-Point Protocol multilink tool—supplied with the 2210—bandwidth can be increased dynamically by grouping the B-channels. And for even greater bandwidth administration, rely on IBM's award-winning Bandwidth Reservation System (BRS) to manage traffic priority over Frame Relay, PPP and dial connections.

### Network Dispatcher for scalable servers

The 2210 Nways Multiprotocol Router's Network Dispatcher features allow system administrators to build and manage scalable Web servers. Network Dispatcher provides load balancing and high availability to users in environments with multiple servers, high traffic volume and many clients. Superior to Domain Name Servers' round-robin queuing, it enables large numbers of individual servers to be linked into large, virtual-server clusters for efficient management. Network Dispatcher is a separately charged program and requires a use-authorization license for each server to be supported.

### Branch Extender for APPN/SNA growth

IBM Branch Extender technology, a component of Nways MRS, enables a single Advanced Peer-to-Peer Networking® (APPN®) SNA network to scale up to thousands of branch locations. With Branch Extender, the 2210 can service many branch locations and eliminate the need for more network nodes. This reduces overall topology and routing traffic and improves bandwidth use.

The 2210 broadens its Internet capability with the APPN/HPR Enterprise Extender function and TN3270E server for branch office networks enhancing the already strong SNA support enabled by the DLSw protocol. The 2210 is capable of supporting additional protocols such as SDLC and BSC, which enable the 2210 to replace the 2218 in the FRAD environment.

### DIALs for LAN emulation

For even greater flexibility in network access, the IBM Dial-In Access to LANs (DIALs) feature allows remote users to dial into a LAN and access resources, emulating a local attachment. DIALs also allows LAN-attached users to dial out to a WAN. The 2210 provides a rich DIALs remote server function that allows the 2210 to be used in a network that supports remote users dialing in or even local users dialing out to remote asynchronous servers. This function is offered by the 2210 to broaden its compatibility with other IBM networking hardware featuring DIALs support. Future DIALs Servers' clients will be fully supported.

### Remote Access function

The V.34 ASYNC interface and DIALs function requires an update to the boot code on the PROM for 2210 12x models and x4x models that were manufactured prior to December 1996. The BOOT ROM version must be 1.50 or 1.60 for the 12x models and Version 2.20 for the x4x models prior to using the V.34 interface and the Dial-in or Dial-out functions of DIALs function. During the loading of the MRS code, if the PROM is not at the correct level, the V.34 support and DIALs functions are disabled. The V2.20 PROM upgrade for the x4x models can be obtained from the IBM 2210 Home Page in the download area.

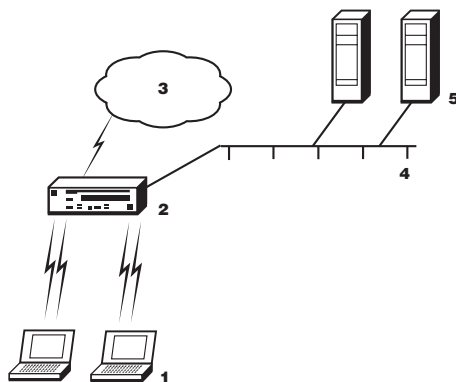
### Enhanced for ATM networking

The 2210 supports ATM- and TCP/IP-based networks seamlessly and can even bridge over ATM to IP and IPX protocols. Supporting 25-Mbps ATM data transmission rates, the 2210 can also provide a LAN Emulation Client to assist in migration to ATM technology, thereby lowering network management costs.

Additional ATM enhancements offered by the 2210 include high-speed ATM application integration, configurable Quality of Service (QoS) for ATM LAN emulation, and support for Next Hop Resolution Protocol (NHRP) to establish shortcut routes and new network redundancy.

The 2210 also supports Classical IP and reliability mechanisms for IP over ATM networks. Native SNA traffic routing with High Performance Routing (HPR) maps and HPR service class to ATM's guaranteed bandwidth services, real-time transport, and multicasting ability also serve to position the 2210 as a flexible ATM solution.

Remote dial access for mobile users



1. DIALs clients
2. 2210 Nways Multiprotocol Router
3. Internet/multiprotocol intranet
4. LAN
5. Remote servers

## TCP/IP network-ready

The 2210 Nways Multiprotocol Router was designed to take advantage of the latest enhancements and standards offered by the Internet Engineering Task Force (IETF). Enhancements to each protocol and link type improve security, administration, reliability, and network efficiency. Among the 2210's innovative features are increased X.25 scalability, X.25 Closed User Group facilities, and X.25 local support over TCP/IP. The 2210 also provides the following benefits:

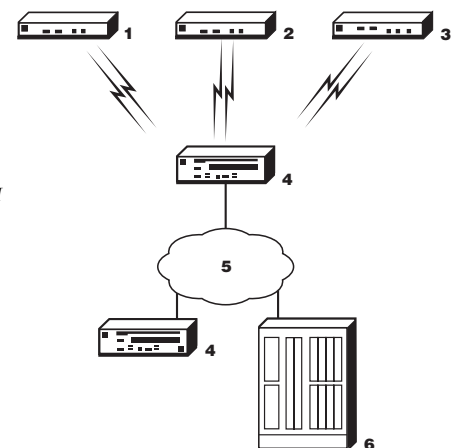
- Broadened remote concentration to encompass a full complement of link types (Frame Relay, SVC/PVC, PPP, SDLC, SDLC relay, V.25bis, X.25 and V.34) for the WAN ports on the system card and 4-port WAN CPCI adapters.
- IP routing includes ICMP, TCP, UDP, RIP, OSPF V2, BGP-4, static routes, Multicast Extensions to OSPF (MOSPF), ARP, InARP, IP Access Controls and IP Version 6 support.
- Advanced SNA support with APPN Network Node (NN), APPN Intermediate Session Routing (ISR), HPR, Dependent LU Requester (DLUR), Version 2-compliant Data Link Switching (DLSw) including NetBIOS support, Branch Extender, Boundary Access Node (BAN), and LAN Network Manager.
- TN3270E server support enables IP access to SNA host applications. Distributed TN3270 servers across an IP subarea, or APPN network provide:
  - Better availability by eliminating a single point of failure with a central gateway
  - Scalability with incremental capacity per 2210 site instead of a large, central-site, server gateway

- The Enterprise Extender function, with Class of Service (CoS) and SNA priority capabilities provides better service levels than DLSw to SNA users running over an IP backbone.
- IETF Layer 2 Tunneling Protocol (L2TP) standard support enables the tunneling of multiprotocol PPP traffic across intranets, extranets or the Internet.
- Layer 2 Forwarding (L2F) protocol, similar to L2TP and PPTP, carries privately addressed IP, IPX and AppleTalk dial-up via PPP across the Internet.
- BAN support to enable end stations attached to the 2210 to make a direct connection through Frame Relay to a front-end controller such as the IBM 3745 Communication Controller or the IBM 3746 Nways Multiprotocol Controller. A similar, direct connection can also be established between the 2210 and an IBM AS/400® system.
- HPR to provide high-speed, native SNA transport with nondisruptive routing around failed connections, and adaptive rate-based congestion control.
- DLUR to enable 3270 traffic to utilize HPR and APPN transports.
- APPN Network Node support to provide routing and directory services to Ethernet, Token-Ring and SDLC-attached nodes.
- APPN ISR to provide the forwarding of session data to the next node along the path.
- IP enhancements such as Dynamic Host Configuration Protocol (DHCP) server provide IP address and other configuration information to LAN-attached DHCP clients. Dynamic IP retrieves a public IP address from an ISP for use on the PPP interface.
  - IPv6 enhancements include new filters, dynamic reconfiguration for IPv6 configurable interfaces and relay agent to provide DHCP server information across the subnets.
  - IPv4 is enhanced to include the generic IP route policy. This controls which routes are included and excluded.
- Performance improvements include the two-way simultaneous scheduling and SDLC full-duplex stations.

*Note: HPR, DLUR, APPN ISR, APPN Network Node, Enterprise Extender, TN3270E and Network Dispatcher are not available on Models 1Sx and 1Ux. Certain limitations apply to the individual models based on memory requirements.*

WAN ISDN concentration for remote offices

1. 2210 Model 1S4
2. 2210 Model 1U4
3. 2210 Model 12E or 12T for WAN or 2210 Model 127 or 128 for ISDN
4. 2210 Model 14T or 24x with ISDN PRI adapter or channelized T1/E1
5. Corporate multiprotocol network
6. 2216 for large concentration needs



### **Standards-based interoperability**

Nways MRS is based on open industry standards, vendor specifications, and protocol implementations that conform to current Internet Engineering Task Force (IETF) RFC levels. IBM participates in industry initiatives such as the IETF, ATM Forum, IEEE, APPN Implementers Workshop (AIW), and the Network Interoperability Alliance. The protocol implementations in Nways MRS provide a full set of features to ensure network reliability, security and interoperability.

### **Invest today, grow tomorrow**

All models of the IBM 2210 Nways Multiprotocol Router are shipped preloaded with IBM Nways MRS licensed software. These software tools offer the flexibility to accommodate future networking requirements and the hardware provides an open adapter slot for growing architectures (available in the high-end 2210 models).

If you are considering the increased use of dial services for backup and for remote offices with only occasional network access, you can use the ISDN BRI and PRI adapters. The 4- and 8-port WAN concentration adapters provide potential cost savings when multiple physical links can be consolidated into a single, high-speed link.

### **Remote installation—quickly and easily**

Extending the corporate network to small, remote offices usually means that skilled technical personnel at a central location must install routers at distant locations that lack skilled resources. The 2210 is designed to meet that challenge.

The EasyStart function means the remote 2210 can be plugged in at a remote location and it will find its configuration on a network server that is typically located at a central site.

All 2210 models also contain a service port supporting asynchronous communication for configuration and maintenance. All models support the industry's open network management standard, SNMP. Management of the system can be accomplished using SNMP managers.

Management application support is provided by many of IBM's management programs, including the Nways Enterprise Manager and the Campus Manager LAN for AIX products. You can also use IBM Nways Workgroup Manager for Windows NT® for smaller networks.

### **Manage VPN security and Quality of Service with the new Nways VPN Manager**

Monitor the security and Quality of Service of your virtual private network using the previewed IBM Nways VPN Manager. The VPN Manager monitors security over IPSec tunnels and Layer 2 sessions. The VPN Manager also monitors Quality of Service for ReSerVation Protocol (RSVP) and the Differentiated Services (Diffserv) TOS byte.

Patent-pending, IBM-exclusive VPN Manager tests simulate the effect of traffic against router policies and measure response time for Layer 2 sessions. The VPN Manager supports the 2210, 2212, 2216, and Network Utility and is supported on Windows NT, AIX, and HP-UX beginning in the previewed Nways Manager Version 2.

### **Deploy software and configuration updates to thousands of routers from your Web browser**

The IBM Nways Deployment Manager automatically retrieves configuration and code images of 2210s throughout your network, seamlessly downloads no-charge 2210 software upgrades from the IBM customer network, and deploys the new code to thousands of routers. Query-based filtering and custom views support highly focused deployment. An approval and commitment process controls deployment and safeguards the network from error. The versioning feature maintains multiple configuration and code images for each single router. Scheduling supports anytime upgrading; the Java foundation supports deployment from your Web browser. The Nways Deployment Manager supports deployment to as many as two thousand 2210s, beginning with MRS Version 2.1. It is supported on Windows NT and AIX beginning in the previewed Nways Manager Version 2.

## IBM 2210 Nways Multiprotocol Router models at a glance

Model	Part Number	LAN	No. of WANs <sup>a</sup>	ISDN BRI	Flash/DRAM	Preloaded Software <sup>b</sup>
1S4 <sup>c</sup>	85H7796	1 Ethernet	1	Yes	2/4 MB	IP+IPX+ISDN
1S8 <sup>a,c</sup>	85H7797	1 Ethernet	1	Yes	4/8 MB	IP+IPX+DLSw+ISDN
1U4 <sup>a,c</sup>	85H7794	1 Ethernet	1	Yes	2/4 MB	IP+IPX+ISDN
1U8 <sup>a,c</sup>	85H7795	1 Ethernet	1	Yes	4/8 MB	IP+IPX+DLSw+ISDN
12T	86H1758	1 Token Ring	2	No	4/8 MB	IP+IPX+DLSw
12E	86H1759	1 Ethernet	2	No	4/8 MB	IP+IPX+DLSw
127	86H1760	1 Token Ring	2	Yes	4/8 MB	IP+IPX+DLSw+ISDN
128	86H1761	1 Ethernet	2	Yes	4/8 MB	IP+IPX+DLSw+ISDN
14T*	86H1778	1 Token Ring	4	Optional	4/16 MB	IP+IPX+DLSw
24T*	86H1779	2 Token Ring	4	Optional	4/16 MB	IP+IPX+DLSw
24E*	86H1780	2 Ethernet	4	Optional	4/16 MB	IP+IPX+DLSw
24M*	86H1781	1 Token Ring & 1 Ethernet	4	Optional	4/16 MB	IP+IPX+DLSw

Notes:

<sup>a</sup> The standard WAN ports and the WAN concentrator ports on the 2210 support any of these physical interfaces: EIA 232-D/V.24/V.28, V.35, V.36/EIA 449, and X.21. Serial interface dial support includes V.25bis and V.34. Data link controls include synchronous PPP, X.25, Frame Relay and SDLC traffic.

<sup>b</sup> Preloaded software can be replaced without additional cost and is made available through Internet downloads.

<sup>c</sup> For models 1S4, 1S8, 1U4 and 1U8, you can now configure the serial WAN port and a single B+D channel of the ISDN BRI port concurrently. Models 1U4 and 1U8 include a fully integrated NT1, incorporating the U interface.

*Adapters and enablement	Feature Code	Part Number
ISDN BRI-S/T	3101	41H7089
ISDN Quad BRI-U	3104	72H5062
T1/J1 ISDN PRI	3107	41H7150
ISDN Quad BRI-S/T	3105	85H7782
E1 120-Ohm ISDN PRI	3108	55H7508
4-Port WAN Concentrator	3120	41H9106
8-Port WAN Concentrator	3121	55H7489
4-Port Dial Access Adapter	3714	72H5033
8-Port Dial Access Adapter	3718	72H5034
4-Port Dial Access Upgrade	3704	72H5035
25-Mbps ATM	3901	41H9100
Optional feature	Feature Code	Part Number
Service Kit*	2532	04H8169

Note: \* Service kit contains all the necessary "wrap" plugs for the LAN, serial and service ports. Although not mandatory, customers may order the kit for locations desired.

**2210 Nways Multiprotocol Router memory at a glance**

<b>Memory</b>	<b>Feature Code</b>	<b>Part Number</b>
<i>Models 14T, 24T, 24E, and 24M</i>		
16-MB SIMM DRAM (field upgrade)*	4016	41H7079
32-MB SIMM DRAM (field upgrade)	4032	41H7123
4-MB Flash SIMM (field upgrade)	4104	41H7077
8-MB Flash SIMM (field upgrade)	4108	55H9399
<i>Models 12T, 12E, 127, and 128</i>		
8-MB SIMM DRAM (field upgrade)*	4048	25H4974
16-MB SIMM DRAM (field upgrade)	4057	42H2671

Note: \*Available for units ordered prior to July 29, 1997 only.

**2210 Nways Multiprotocol Router cables at a glance**

<b>Description</b>	<b>Feature Code</b>	<b>Part Number</b>
CCITT X.21 Serial Interface Cable	2211	60G3906
CCITT X.21 Direct-Attach Cable	2212	10H5591
EIA 232/CCITT V.24 Serial Interface Cable	2321	55H7756
EIA 232/CCITT V.24 Direct-Attach Cable	2322	60G3901
V.35 Serial Interface Cable	2351	60G3902
V.35 Serial Direct-Attach Cable	2352	60G3903
V.36 Serial Interface Cable	2361	60G3904
Token-Ring STP Cable	2665	6339098
RJ-45 Cable (Token-Ring, Ethernet and ISDN)	2391	41H9082
RJ-48 T1/ISDN PRI Cable	2314	85H3509

**IBM 2210 Nways Multiprotocol Router software at a glance**

<b>Description</b>	<b>Type Number</b>	<b>Feature Code</b>	<b>Part Number</b>
MRS V3.3 (1U4/8, IS4/8) Base	5801-AAR	5302	41L0876
MRS V3.3 (12x)	5801-AAR	5315	41L0877
MRS V3.3 (x4x)	5801-AAR	5316	41L0878
MRS V3.3 Network Dispatcher (x4x)	5801-AAR	5329	41L0879
MRNS/MRS ICA or MRS V2 to MRS V3 to MRS V3.3 Upgrade	5803-AAR	2324	41L0880



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**IBM 2210 Nways Multiprotocol Router at a glance**

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<b>Dimensions</b>	<b>1Sx/1Ux</b>	<b>12x</b>	<b>14T/24x</b>
<i>Width</i>	279.4 mm (11 in.)	440 mm (17.32 in.)	440 mm (17.32 in.)
<i>Depth</i>	133 mm (5.24 in.)	254 mm (10 in.)	305 mm (12 in.)
<i>Height</i>	41.4 mm (1.63 in.)	43.7 mm (1.72 in.)	87.4 mm (3.44 in.)
<i>Weight</i>	1.24 kg (2.73 lb)	3.2 kg (7 lb)	5.57 kg (12.3 lb)
<b>Serial interfaces</b>	EIA 232-D/N,24/V,28, V,35, V,36/EIA 449, and X.21 <i>Note: Dial support provided using V.25bis and V.34.</i>		
<b>LAN interfaces</b>	Ethernet: IEEE 802.3 at 10 Mbps Connections: AUI and 10BASE-T (RJ-45) Token-Ring: IEEE 802.5 at 4 or 16 Mbps Connections: 9-pin D-connector and RJ-45		
<b>Memory features</b>	8-MB additional flash memory 16-MB DRAM expansion 32-MB DRAM expansion <i>Note: Flash memory can be increased to 8 or 12 MB. Expand DRAM by selecting a DRAM memory feature to replace the installed DRAM.</i>		
<b>Adapter features</b>	25-Mbps ATM interface ISDN BRI-S/T ISDN Quad BRI-S/T ISDN Quad BRI-U E1 120-Ohm ISDN PRI T1/J1 ISDN PRI 4-port WAN concentration 8-port WAN concentration 4-port Dial Access Adapter 8-port Dial Access Adapter <i>Note: The Adapter Enablement Feature is a prerequisite for installing any adapter and is standard as of July 29, 1997. Models 14T, 24E, 24T and 24M can have adapters installed.</i>		
<b>Electrical requirements</b>	Automatically senses line voltage within an input range of 110 to 240 V ac at 50 to 60 Hz (U.S. power cord included with every 2210 model.)		
<b>Operating environment</b>	Temperature: 10° to 40°C (50° to 104°F) Relative humidity: 8% to 80% Maximum wet-bulb temperature: 27°C (80°F) Power consumption: 19 watts (Models 1Sx and 1Ux) 35 watts (all other models)		
<b>Heat output</b>	8.8 kcal/hr (35 BTU/hr) for Models 1Sx and 1Ux 28.5 kcal/hr (113 BTU/hr) without Adapter Enablement Feature (all other models) 34.5 kcal/hr (137 BTU/hr) with Adapter Enablement Feature (all other models)		
<b>2210 certifications</b>	Safety certifications: EN 60950, UL 1950, CSA 950 Electromagnetic compliance certification: <ul style="list-style-type: none"><li>• FCC Class A (U.S.A.)</li><li>• VCCI Class A (Japan)</li><li>• ICES-003 Class A (Canada)</li><li>• European Community Mark of Community (CE Mark), for Class B, CISPR 22 / European Standard EN 55022</li></ul> <i>Note: The 2210 1Sx and 1Ux models comply with FCC Class B (U.S.A.) and ICES-003 Class B (Canada)</i>		
<b>Warranty</b>	One year		
<b>Installation</b>	All models can be placed on a flat surface, and all models except 1Sx and 1Ux can be mounted in a rack inside a telecommunications closet.		
<b>ISO 9000</b>	The IBM 2210 Nways Multiprotocol Router was developed and is manufactured by IBM under a registered ISO 9000 quality management system.		

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## **IBM 2210 Nways Multiprotocol Router at a glance continued**

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### **Year 2000 ready**

The IBM 2210 Nways Multiprotocol Router 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.

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### **Software**

#### *IBM Nways Multiprotocol Routing Services*

##### *Routing protocols*

- TCP/IP (IPv4 and IPv6)
- IPX
- AppleTalk 2
- Banyan VINES
- DECnet IV
- DECnet V/OSI

##### *SNA*

- APPN NN
- APPN ISR
- HPR
- DLUR
- DLSw (RFC 1795 and 2166) including NetBIOS support SDLC primary and secondary
- SDLC Multiple SNA PU support
- BAN and Boundary Network Node (BNN)
- LAN Network Manager (LNM)
- Extended Border Node

##### *Bridging*

- Source-route bridging (SRB)
- Transparent bridging (TB)
- Source-route transparent bridging
- SRB-TB translational bridging
- IP bridging tunnel

##### *ATM*

- ATM Forum UNI 3.1
- ATM Forum Interim Local Management Interface (ILMI)
- Permanent virtual circuit (PVC) and switched virtual circuit (SVC)
- RFC 1483 Encapsulation over ATM for IP (Classic IP-RFC 1577) and IPX
- LAN Emulation Client support to enable existing Ethernet and Token-Ring
- LAN applications to use ATM services
- HPR

##### *Switched networks*

- V.25bis (PPP)
- ISDN BRI and PRI (PPP or Frame Relay)
- WAN restoral (PPP)
- WAN reroute from Frame Relay, PPP, or X.25 link failures
- Dial on demand
- V.34 for remote LAN access

##### *WAN data link controls*

- Frame Relay (RFC 1490) including BAN support
  - PPP
  - PPTP
  - L2F protocol
  - X.25 including QLLC and X.25 DTE Transport (XTP) for X.25 over a TCP/IP network
  - SDLC
  - BSC
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## IBM 2210 Nways Multiprotocol Router at a glance continued

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### Software continued

#### *Virtual Private Networking*

- IP Security
- AAA Security
- Layer 2 Tunneling Protocol (L2TP)
- LDAP
- ISP Support
- Differentiated Services
- Dynamic IP Address assignment

#### *Bandwidth Reservation System*

- Dial-on-Demand
- Dial Backup (WAN Restoral/WAN Reroute)

#### *Interactive Network Dispatcher*

#### *EasyStart*

#### *Enterprise Extender*

#### *TN3270E Server*

#### *Branch Extender*

#### *Dial-In/Dial-Out Access for LANs (DIALs) remote LAN access*

- Secure ID
- Network Address Translation (NAT)
- IP Address Pooling

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### Publications

- *IBM 2210 Nways Multiprotocol Router Introduction and Planning Guide*, GA27-4068
- *IBM 2210 Nways Installation and Initial Configuration Guide*, GC30-3867
- *Nways Multiprotocol Access Services: Software User's Guide*, SC30-3681
- *Nways Multiprotocol Access Services: Using and Configuring Features*, SC30-3992
- *Nways Multiprotocol Access Services: Protocol Configuration and Monitoring Reference Vol. 1*, SC30-3680
- *Nways Multiprotocol Access Services: Protocol Configuration and Monitoring Reference Vol. 2*, SC30-3865
- *Nways: Event Logging System Messages Guide*, SC30-3682
- *Nways: AIS/MAS/MRS/MSS/MSSC Configuration Program User's Guide for Nways Multiprotocol and Access Services Products*, GC30-3830
- *IBM 2210 Nways Multiprotocol Router Service and Maintenance Manual*, SY27-0345
- *IBM 2210 Nways Multiprotocol Router Description and Configuration Scenarios - Volume 1*, SG24-4446
- *IBM 2210 Nways Multiprotocol Router and IBM 2216 Nways Multiaccess Connector Description and Configuration Scenarios - Volume II*, SG24-4956
- *A Comprehensive Guide to Virtual Private Networks, Volume II: IBM Nways Router Solutions*, SG24-5234
- *3746, 2210, 2216, and 2220 Interconnectivity: Frame Relay and Related Functions*, SG24-2146

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### Home Page

For additional information go to:  
[www.networking.ibm/220/220prod.html](http://www.networking.ibm/220/220prod.html)

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**For more information**

To find out more about the IBM 2210 Nways Multiprotocol Router 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 access the IBM 2210 Home Page at:  
[www.ibm.com/networking/220/](http://www.ibm.com/networking/220/)



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