Paving the way to the Internet for remote-access users

IBM 8235 Model I40 Dial-In Access to LANs (DIALs) Switch

Highlights

- ***T1, E1 and PRI ISDN support***
- ***Support for up to 72 users at a time (up to 78 in Europe)***
- ***Individual dial-in connect speeds up to 128 Kbps***
- ***LAN-to-LAN speeds up to 512 Kbps***
- ***User-configurable analog and digital support***
- ***Up to 6 internal modem cards for analog calls with 12 modems per card***
- ***Line cost savings using virtual connections***
- ***Compatibility with all 8235 clients***
- ***A single centralized configuration and management facility for all models***
- ***Support for a variety of security options***
- ***Powerburst option***

Large enterprises today are faced with the need to extend their private networks and intranets to an increasing number of telecommuters and mobile users. As the number of dial-in users increases, so does the complexity connected with providing large-scale remote access.

In addition to the usual concerns about high connectivity and high performance for remote users, network administrators also have to deal with issues such as support for multiple client platforms and multiple client protocols, network management and network security. The 8235 Model I40 Dial-In Access to LANs (DIALs) Switch significantly reduces the network complexity caused by these issues by providing remote dial-in, multiprotocol and multiclient support, ease of management and full security support in a single product.

The Model I40 is a configurable remote-access switch. When you order a Model I40, you also order either a Token-Ring or Ethernet LAN attachment feature card, each of which is packaged with an appropriate CPU card. And you can order different combination of Model I40 communications cards, including a single-PRI/T1 card, a dual-line PRI/T1 card with or without CSU/DSU, a dual-line PRI/T1 card with software-selectable CSU/DSU function, a quad T1 analog-only card (North America only), a dual-line PRI/E1 card and up to six modem cards with 12 V.34bis modems, each available for analog service. Call-discrimination for detecting analog or digital call sources is also provided with the PRI ISDN interface.



Multiuser, multiprotocol, multifunction

Users can remotely access a variety of applications thanks to the Model I40's routing and bridging support for multiple protocols, including:

- IPX for NetWare, NetBIOS for LAN servers and IP for TCP/IP applications for both Token-Ring and Ethernet models
- AppleTalk for ARA 2.0 on Ethernet models
- 802.2 LLC for the 3270 Information Display System and 5250 Display System for Token-Ring models.

And Model I40 supports call origination for dial-out (modem-pooling) and LAN-to-LAN routing connections to another 8235 server.

A single solution to large-scale remote access

The Model I40 DIALs Switch extends IBM's remote LAN access technology to the high-capacity, high-performance enterprise environment. A single Model I40 can support a mix of up to 72 analog-only or 60 digital-only or a mix of 48 analog and 23 digital users with high-speed, channelized T1/E1 with PRI ISDN connections through single- and dual-line, high-speed WAN adapters. Virtual connections are supported with dial-in or LAN-to-LAN to reduce line cost without session disruption.

Model I40 supports multiple dial-in client protocols including IP, IPX, NetBIOS, LLC and AppleTalk. Dial-in speeds up to 128 Kbps are supported through the 2 ISDN B-channels, and speeds up to 512 Kbps are supported with 8 channels aggregated through LAN-to-LAN routing. Up to 6 modem adapter cards, each with 12 V.34bis modems, can be installed for analog calls. Model I40 also supports dial-in transmission speeds up to 115.2 Kbps over analog phone networks, furthering its contribution to optimum, remote-access performance.

Integration with 8235 DIALs Servers

Model I40 is compatible with dial-in clients supported by all 8235 models. It can be used for LAN-to-LAN routing with the other 8235 models and can be managed using the 8235 Management Facility, which can manage all models of the 8235 family. And Model I40 supports the same variety of security options that the existing 8235 models support, and it includes management and accounting support based on the RADIUS accounting protocol.

Refer to *8235 Dial-In Access to LANs (DIALs) Software Release* (G224-4440) for more information about the software supporting the 8235 DIALs Switch.

A premier remote-access switch

The 8235 Model I40 is positioned as the premier enterprise remote LAN access switch and the Internet Service Provider's (ISP's) access server. It provides high connectivity and performance for remote access to the resources on your network or on the Internet. A single Model I40 allows an ISP or network administrator to handle up to 72 analog dial-in users or a mix of 48 analog and 23 digital sessions with PRI/T1 dual-line cards. A single Model I40 can handle up to 72 analog dial-in users with a quad-line T1 card and 6 digital modem cards installed. And multiple Model I40 switches can be managed from one location, allowing the ISP or administrator to easily manage hundreds of dial-in users, whether they're calling over an analog or a digital network.

New shell support features for customization of the shell log-in process, and support for Domain Naming Services (DNS), ease the network manager's load.

Other product solutions might focus solely on connectivity, but the 8235 Model I40 DIALs Switch offers a complete, end-to-end solution that's excellent for large-scale, corporate enterprise remote access.

What you get

With each 8235 Model I40 DIALs Switch LAN feature, you get:

- 8235 Management Facility
- 8235 Administrator's Guide on CD-ROM
- Dial-in client software for:
  - OS/2®
  - DOS - Windows® 3.1 or higher
- Dial-out client software for:
  - OS/2 , DOS , Windows 3.1 or higher
  - Windows 95 or Windows NT®
- 8235 Model I40 Installation Map
- LAN-to-LAN Connect software with rights to copy for OS/2 and Windows
- An online user's guide for each client software package
- Rack-mounting hardware including telescoping rack slides



Ethernet Feature



Dual PRI/T1 Adapter
(Single is also available)



Digital Modem Adapter



Token-Ring Feature

IBM 8235 Model I40 DIALs Switch at a glance

Part number	*Hardware and software** 85H6484: 8235 Model I40 DIALs Switch *Software only* (chargeable)* 00K5019: 5019 Software Key for Powerburst (optional)
LAN features	5656: 8235 Model I40 DIALs Switch Token-Ring Feature (P/N 85H5656) 4026: 8235 Model I40 DIALs Switch Ethernet Feature (P/N 85H4026)
Configuration	Processor: 60-MHz Motorola 68EC060
Memory	8-MB dynamic RAM; 4-MB flash RAM; 1-MB battery-backed-up static RAM
Supported cards	85H4037 4027: Single PRI/T1 card supporting either digital or analog connection without CSU/DSU 85H4028 4028: Single PRI/E1 card 85H4029 4029: Dual PRI/T1 card supporting either digital or analog connection without CSU/DSU 85H4030 4030: Dual PRI/E1 card 85H4525 4525: Single PRI/T1 card supporting either digital or analog connection with CSU/DSU 85H4034 4034: Dual PRI/T1 card supporting either digital or analog connection with CSU/DSU 85H8993 8993: Dual PRI/E1 card with E1 service with PRI ISDN 85H8992 8992: Dual PRI/T1 card with software-selectable CSU/DSU and channelized T1 support 85H8991 4581: Quad T1 card with software-selectable CSU/DSU and channelized T1 support 85H4031 4031: Digital Modem card supporting 12 modems
Supported protocols	NetBIOS, IPX/SPX, TCP/IP, 802.2 (LLC), AppleTalk ARA 2.0, PPP and SLIP
I40 DIALs Switch	The 8235 supports dial-in communications for workstations operating with the DIALs Client licensed program, Windows 95, Windows NT 3.5, SLIP, PPP or Telnet dialers. Installation and management of the 8235 are recommended using the 8235 Management Facility. The Management Facility runs in Windows using IP or IPX. It also runs in a WIN-OS/2 session of OS/2 or a Windows session of Windows 95 using IP.
Hardware requirements	Any PC or PS/2® workstation with a 386 or higher processor and OS/2 Client 2.0 or higher, or Windows 3.1 or higher, or a 286 or higher processor and DOS 3.3. Any Macintosh Plus or later model computer with 4 MB of RAM and a hard disk running ARA 2.0 dial-in support on System Software 7.0 or higher is supported. (For remote networking the 16550 UART on the client PC serial port is recommended.)
Cabling requirements	STP cables with RJ-48 USOC (ISO8877) connectors to connect the T1/E1/PRI feature cards to an external CSU/DSU; UTP cables to attach to the 10BASE-T connection or thick coaxial cables to attach to the 10BASE5 connection on the Ethernet feature (An RJ-45/UTP cable with an integrated filter for CISPR-B where it is required is supplied with the Ethernet feature.); RJ-45/UTP cables to attach to the RJ-45 connector on the Token-Ring feature (An RJ-45 EMI filter (P/N 42H6079) that supports CISPR-B where required and a 12-inch RJ-45-to-DB9 converter cable (P/N 60G1066) for STP cable attachment are supplied with the Token-Ring feature.).
Remote clients	• *Supported dialers*: DIALs clients (3.5 and higher) on OS/2, DOS, Windows 3.x platforms, SLIP, PPP, AppleTalk ARA 2.0, Windows 95 RAS Client, Windows NT 3.5 RAS Client and Telnet.
DIALs security passwords	• IDs and encrypted passwords in the 8235 Server, date-timed and user-upgradable. • *Third party*: SecurID Ready, Novell NetWare 3.0 Bindery Services, AssureNet Pathways Defender, Blockade Systems, RADIUS authentication and accounting, TACACS and TACACS+.
Management	• *8235 Management Facility*: The 8235 Management Facility is a Windows-based graphical application that runs in Windows using IP or IPX in a WIN-OS/2 session of OS/2 or a Windows session of Windows 95 using IP. It is compatible with other 8235 models. • *Nways*™: Nways Manager for Windows or Nways Campus Manager LAN • *SNMP*: MIB II can be managed from an SNMP manager. BootP support is provided. • *Telnet*: Telnet command shell supported.
***Note**	The software and publications are also available on the Web at http://www.networking.ibm.com/nes/neshome.html

Physical specifications	Width: 440 mm (17.3 in.) Depth: 406 mm (16 in.) Height: 178 mm (7 in.) Weight: 14 kg (30.9 lb)
Electrical requirements	Power: 0.5 kVA Line voltage: 100 to 240 V ac Frequency: 50 to 60 Hz
Environmental requirements	Operating temperature: 10° to 40°C (50° to 104°F) Storage temperature: 0° to 50°C (32° to 122°F) Relative humidity: 20% to 80% Maximum wet-bulb temperature: 29.6°C (85.3°F)
Warranty	1 year

For more information

To find out more about the IBM 8235 DIALs Switch 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 Networking Home Page at http://www.networking.ibm.com.

Copies of this and other related product specification sheets can be obtained from the IBM FAX Information Service by dialing 1 800 IBM-4-FAX (1 800 426-4329) in the U.S. or Canada or by dialing (415) 855-4329 outside the U.S. and Canada and requesting the following document numbers:

5953: *IBM 8235 Model I40 Dial-In Access to LANs DIALs Switch*

6210: *IBM 8235 Dial-In Access to LANs DIALs Server Release*

5697: *IBM 8235 Dial-In Access to LANs DIALs Server Models 031 and 032*

6218: *IBM 8235 Dial-In Access to LANs DIALs Server Models 021 and 022*

5952: *IBM 8235 Dial-In Access to LANs DIALs Server Models 051 and 052*

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IBM Corporation
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PO Box 12195
RTP NC 27709

Printed in the United States of America
3-97

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G224-4490-02