



• IP WAN Router with Four Integrated E1 DSU/CSUs •

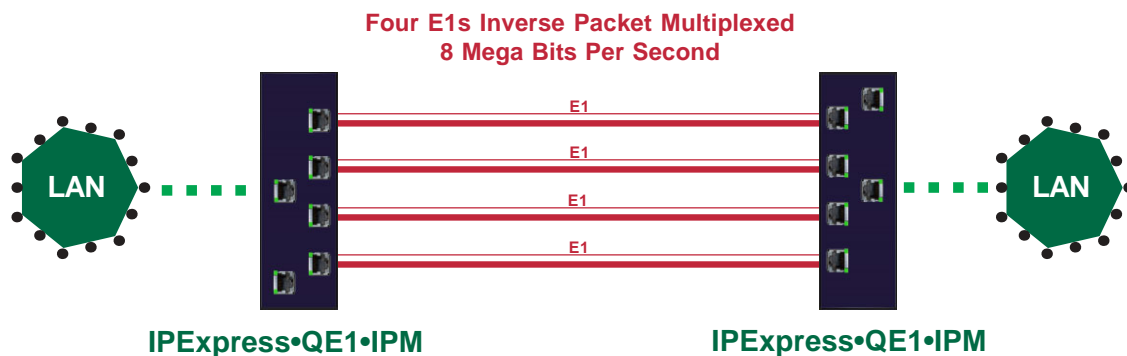
IP•Express•QE1 is a high performance, bandwidth scalable, IP WAN router with 4 E1 ports offering a standards-based inverse multiplexing (N x E1) capability. The 4 E1 ports are able to connect to 4 remote locations or to be N x E1 inverse packet multiplexed to remote locations from 4 Mbps to 8 Mbps. Standards based WAN protocols, PPP, Multilink PPP, and Frame Relay, ensure interoperability.

The **IP•Express•QE1** is a very reliable, high performance and cost effective IP WAN Router for interconnecting remote LANs and addresses the large market for connectivity in the multi-megabit bandwidth range such as high performance MPEG Video delivery. The Integration of the E1 CSUs provides for a complete solution with a straight forward configuration. It is great for:

- **MPEG Video Distribution**
- **Branch Office Connections**
- **Education District Networking**
- **Multimegabyte File Transfers**

Inverse Packet Multiplexing

Inverse **P**acket **M**ultiplexing is a feature of the **IPExpress•QE1•IPM**. **IPM** delivers 4 to 8 Megabits of interconnectivity over 2,3,4 Dedicated E1 WANs. IETF approved RFC1990 Multilink PPP protocol bonds multiple E1s into a high-speed virtual link that has built-in redundancy. E1 line fault detection provides resilient connectivity for Mission Critical Interconnects.



• High Performance Fault Tolerant Internet Access

Internet Service Providers deploy the **IP•Express•QE1** as a customer premise solution for customers that require Fault Tolerant NXE1 multimegabit access to the Internet. Industry Standard Multilink Point to Point Protocol ensures interoperability with the Internet Service Providers Point of Presence solution.

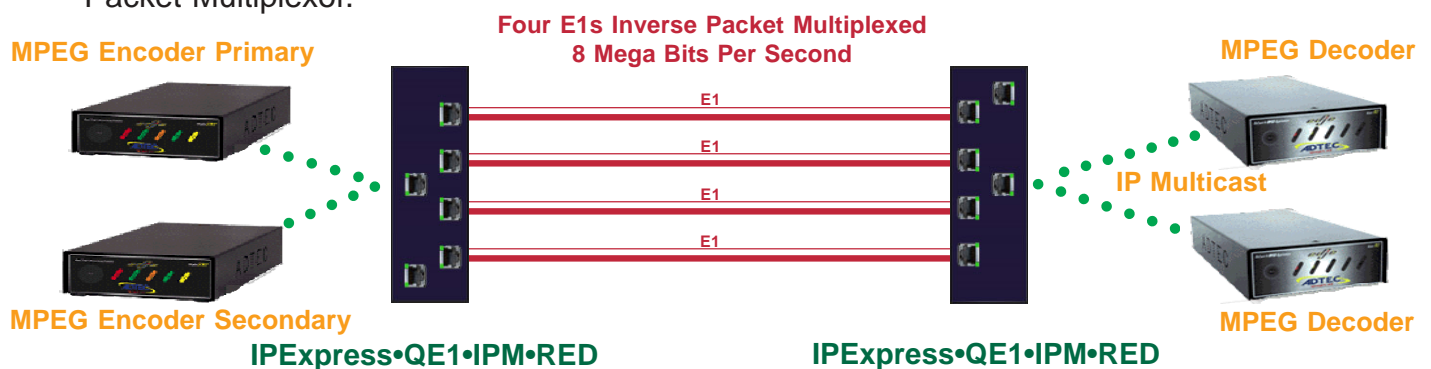
IPExpress•QE1

MPEG IP Multicast Streaming Video Delivery

IPExpress•QE1•IPM models deliver MPEG IP Streaming Video over Inverse Packet Multiplexed E1s. The Inverse Packet Multiplexor provides the bandwidth necessary for the delivery of 2 broadcast quality video feeds or to deliver near Contribution quality for a single MPEG Video. **IP Multicast** is a standard feature of the **IPExpress•QE1** and is utilized to distribute MPEG video simultaneously to multiple decoders.

MPEG IP Video Redundancy Switch

REDundant IP Video configuration automatically switches from the Primary to a Secondary Encoder's IP Video Stream for mission critical broadcasts and is available with the **IPExpress•QE1•IPM•RED**. A one second absence of IP packets from the Primary Encoder results in the switch to the Secondary Encoder. The WAN bandwidth is reserved for a single feed. The Redundancy option is also available with the Inverse Packet Multiplexor.

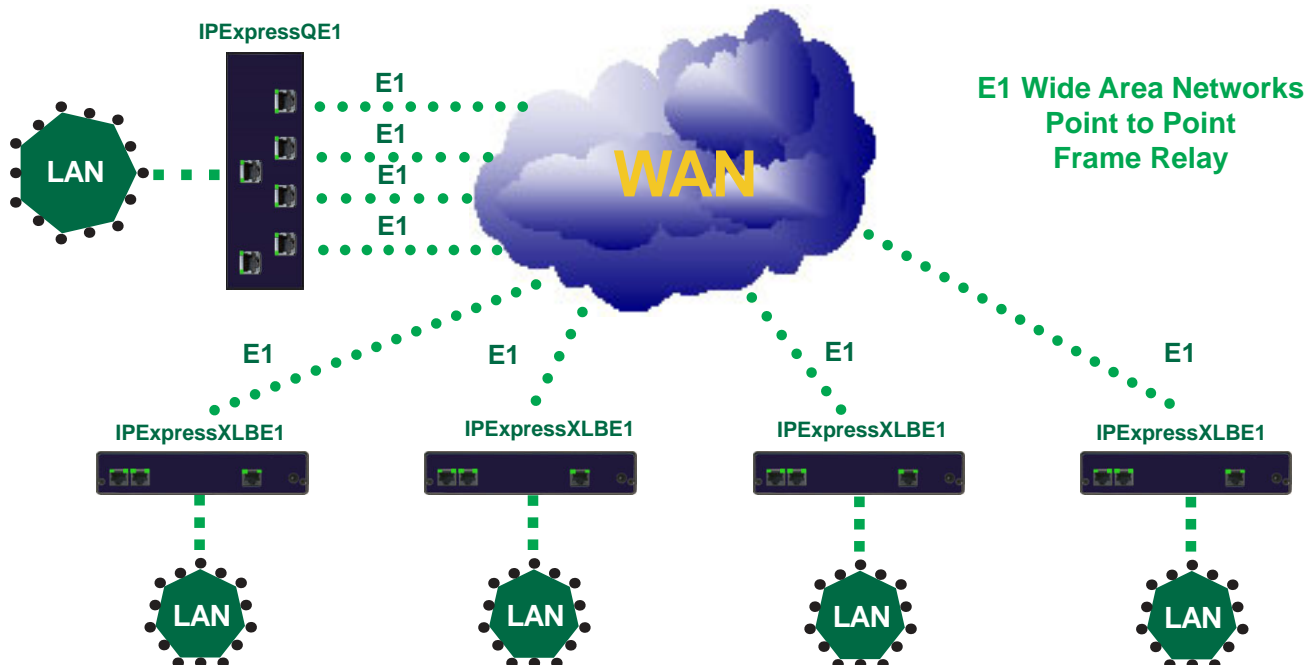


Enterprise Branch Office

Enterprises connect branch offices to their corporate headquarters.

Education District Networking

School Districts interconnect networks into a high performance intranet.



IPExpress•QE1



IPExpress•QE1 models packs 4 E1 WAN connectivity into 1/3 of a 19" wide rack

Management

Management of the **IPExpress•QE1** is accomplished with a Command Line Interface that is accessed through a Console or Telnet connection. Templates of the most common configuration provide for an Edit and Paste configuration. SNMP MIB I and II support is a standard feature.

Network Security

Network Security is established with Full On Source, Destination Address; Port and Flag IP Packet filtering. Interconnectivity is able to be selectively controlled at the interface, network, device and application layers.

Diagnostics

IPExpress•QE1's integrated diagnostic capabilities provide for expeditious fault isolation. The E1 interfaces of the have Bit Error Rate Testors. The **BERT** capability in combination with the diagnostic test loops provides for E1 physical layer qualification. Packet level diagnostics are accomplished with IP Ping packets that can be sent continuously.

Performance Upgrades

IPExpress•QE1 software upgrades that enhance the performance are available for free by contacting Engage Communication support department. The performance upgrades are loaded by TFTP into the upgrade portion of the FLASH ROMs and the unit is operation during the upgrade.

IPExpress•QE1

Technical Specifications

LAN Network Interface:

- 10/100 BaseT Ethernet Port
- Autonegotiate or Configured Speed/Duplex

LAN Network Protocols Supported:

- IP, TCP, UDP, RIP, ICMP
- IP Multicast support
- IP Video Stream Redundancy (Optional)

WAN Network Interfaces:

- Four E1/FracE1 CSU/DSU ports
- Inverse Packet Multiplexing (Optional)

WAN Network Protocols Supported:

- PPP (RFC 1548, RFC 1332, RFC 1334, PAP)
- Multilink PPP (RFC 1990)
- Frame Relay (ANSI ANNEX D, LMI, RFC 1420)

Routing Protocols Supported:

- RIPv1, Static

E1/Fractional E1 Specifications:

- Framing - CRC4 or FAS
- Coding - HDB3 or AMI
- Supports DS0 assignments from 1 to 31

E1 Diagnostic:

- Loopback Test
Network, Internal, Framer, Payload
- Bert Tests
2E07,2E11,2E15,QRSS

TFTP Online Upgrade Capable (FLASH ROMs)

- IPExpressQE1 is fully operational during upgrade

Network Security:

- Full On Source, Destination Address;
Port and Flag IP Packet filtering
- Network, Device and Application Layers.

Management:

- Telnet support with Edit and Paste Template Files
- Console Port for Out of Band Management
- SNMP support (MIB I, MIB II)
- Remote configuration, monitoring, & reset

Regulatory:

- Safety -IEC60950
- EMC - CFR 47 Part 15 Sub Part B:2002
EN55022:1994+A1&A2
EN55024, ICES-003 1997
CISPR 22 Level A
- Telecom - TBR12, TBR13
- CE

Power:

- 12-24 VAC/VDC 1.0A International Adapters Available
- Optional -48V 0.25 Amp
- Hot Standby with 2nd Power Module

Dimensions:

- 14" (L) x 5.5" (W) x 2.50" (H)

Back Panel

Rear Panel shown for Hot Standby Negative 48 Model

