



E3 Circuit Extension Over IP



- **ROI Measured in Weeks**
- **Exploits Efficiency of Ethernet**

E3 CIRCUIT EXTENSION OVER ETHERNET

E3 Voice, Video and Data Over IP

The **IP•Tube E3** encapsulates E3 circuits into IP Ethernet packets. The conversion of E3 circuits into packets enables organizations to dramatically reduce leased line costs by exploiting the efficiency of Ethernet networks. E3 Toll charges assessed by long distance and local carriers are eliminated or dramatically reduced for:

• Competitive Local Exchanges	• Multi-Site Enterprises
• Internet Service Providers	• Cellular Service Providers
• Education: K-12 and Universities	• Government and Municipalities

Transparent Protocol and Signaling

The **IP•Tube E3's** transparent operation maintains the proprietary signaling required to support call conferencing, call forwarding, caller ID and SS7. Transparent support for Modem, Fax, or Data circuits. Preserves toll-quality voice across the network.

The **IP•Tube's** low latency E3 Over IP connection provides for the transparent interconnection of Private Branch Exchanges, Mobile Switching Centers, Telecom Switches and E3 based communication systems via:

LANs, WANs, MANs, IP Satellite and Wireless Ethernet



LANs

The most compelling option for the interconnection of E3 based systems is when it can be accomplished over a Local Area Network. Fiber based LANS such as Gigabit Ethernet, provide organizations with high performance and high quality bandwidth that is especially well suited for the interconnection of an E3 formatted digital signal at 34.368 megabits per second.

Metropolitan Area Networks

MANs provide a major savings for transport of E3 circuits that are Interlata. E3 circuits incur long distance service costs when the connection is between two local exchange carriers in different regions. MAN's geographical coverage spans Local Access and Transport Areas with flat fee monthly service fees that are a fraction of E3 leased circuits.

Standard Features

Service Quality Packet Prioritizing

The **IP•Tube E3** uses the Type of Service byte in the IP packets to prioritize the encapsulated E3 frames. The setting of the TOS byte can be used to ensure that the real time TDM data from the **IP•Tube E3** is ensured high priority. Additionally 802.1p/q VLAN tagging provides layer 2 prioritization.

Management Interface

Management of the **IP•Tube E3** 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, with traps, is a standard feature.

Optional Features

Protector OPTION -PRO

The protector option utilizes the second LAN interface as a redundant path for the interconnection of the IP encapsulated E3 data. The extension of the E3 circuit has a fault tolerant link that is configured to always on, or with switch over criteria.

Alternator Option -ALT

The **IP•Tube E3-ALT** Alternator option alternatively sends the IP packetized E3 frames on LAN 1 and LAN 2. The Alternator option enables the bandwidth required to transport E3 circuits to be split over two WAN connections.

Technical Specifications

LAN Network Interface:

- Two 10/100BaseT Full/Half Ethernet
- Autonegotiation or Configured Speed/Duplex

LAN Network Protocols Supported:

- IP, TCP, UDP, ICMP

E3 Specifications:

- One E3 Interface
- Framing - unFramed Full E3, G.751

E3 Over IP Protocol:

- TDM Over IP
- Circuit Extension Services Over IP
- Low Latency: less than 500 micro seconds

Quality of Service Support:

- IP Type of Service (TOS) CLI configured
- IANA Registered UDP Port 3175
- 802.1p/q VLAN tagging provides layer 2 prioritization

Management:

- Telnet support with Edit and Paste Template Files
- Console Port for Out of Band Management
- SNMP support (MIB I, MIB II) with configured traps
- Remote config., monitoring, & reset
- Telco Diagnostics: Local Loop, Remote Loop

TFTP Online Upgrade Capable

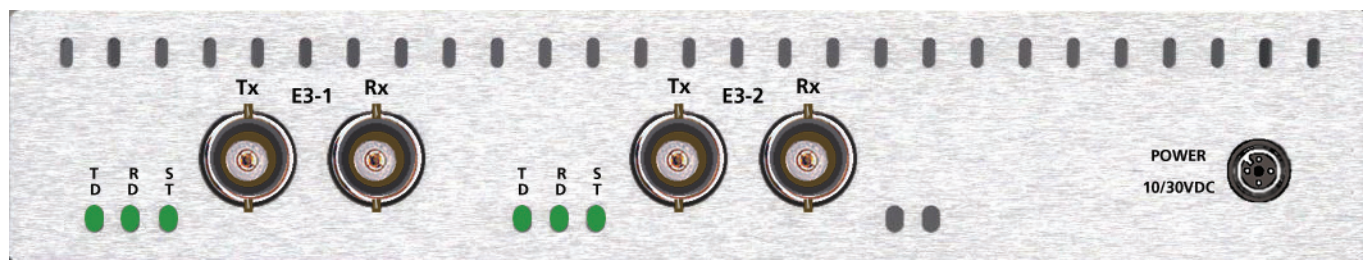
- IPTube is fully operational during upgrade

Regulatory:

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

Rear Panel/Power:

- 10-30 VDC, 1.0A.
- Screw Locking Connector
- Universal Adapter 100/240 VAC 50/60 Hz
- Optional -48V 0.25 Amp • Hot Standby
- Dimensions: 9" (L) x 7.3" (W) x 1.50" (H)



How to Order — IP•Tube E3

Part No.	Description	Notes
043-4368-0X	IP•Tube E3 (x=1 - 2 Ports)	Base Model Specify # of E3 Ports Enabled
-PRO	Protector Option	Fault Tolerant Network Interconnect
-ALT	Alternator Load Balancing Option	Load Balancing Inverse Mux
Power Options		Specify as suffix
-DCMOD	Power Supply Module 12-30 VDC	Ships with Universal Adapter 90/240 50/60
-N48VDC	Power Supply Module Negative 48 Volt DC	Isolated Negative 48 Volt Power
Rack Mount Option		Specify as suffix
-RACKMNT	19/23" Wide Rack Mount Brackets	Enclosure Nut Serts Installed