

Type 1 Encrypted Data Over IP

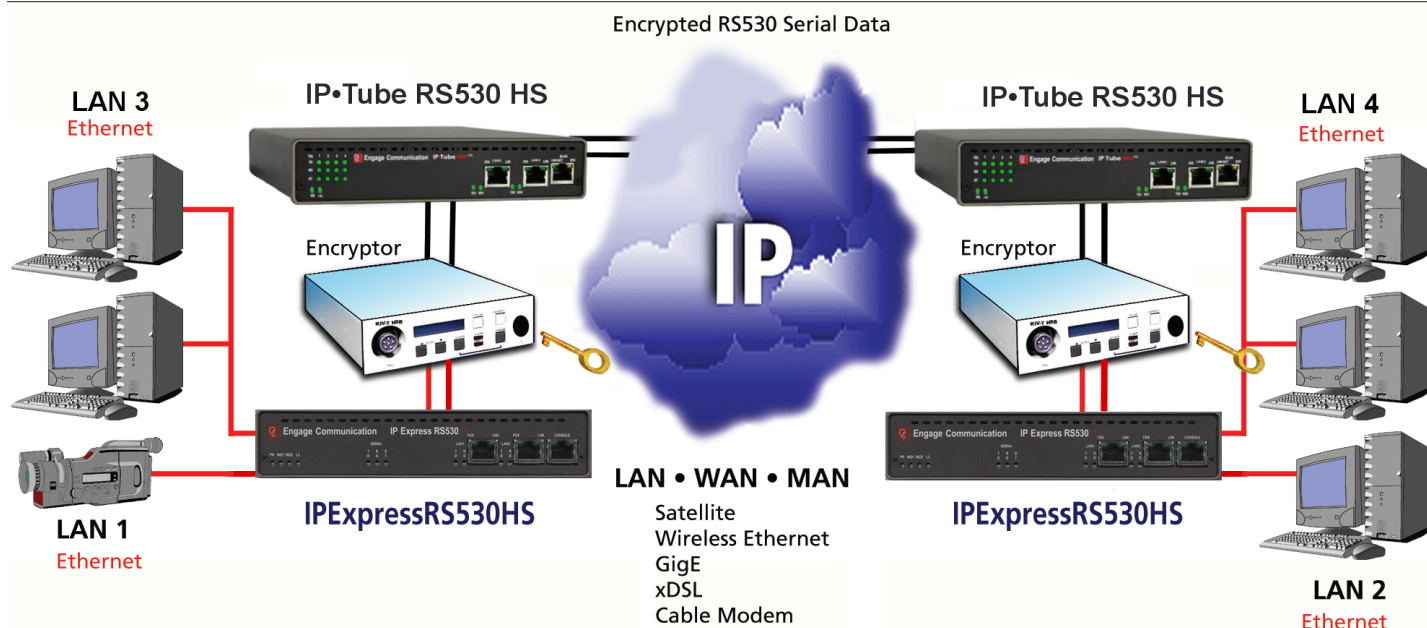


RS530 Synchronous Serial Data over IP

- Transparent Bandwidth Regulated IP Tunnel
- Transparent Circuit to Packet Conversion
- Exploits Efficiency of IP Networks
- Straightforward Configuration

Leverage Existing Bulk Data Encryption for Data over IP

The **IP•Tube•RS530HS** provides for the leveraging of existing synchronous serial bulk rate encryptors such as KIV-7, KIV-19, OMNixi and KG-84. The **IP•Tube•RS530HS** encapsulates synchronous serial data from Data Terminal or Communication Equipment into IP packets. These IP packets are sent to a remote **IP•Tube•RS530HS** where the serial data is de-encapsulated and synchronously clocked into the remote Data Equipment. The IP connection provides for the transparent interconnection of Synchronous Serial Data Equipment via LANs, WANs, MANs, Satellite and Wireless Ethernet. Configured Data rates from 2.4 Kilobits per second to 16 million bits per second.



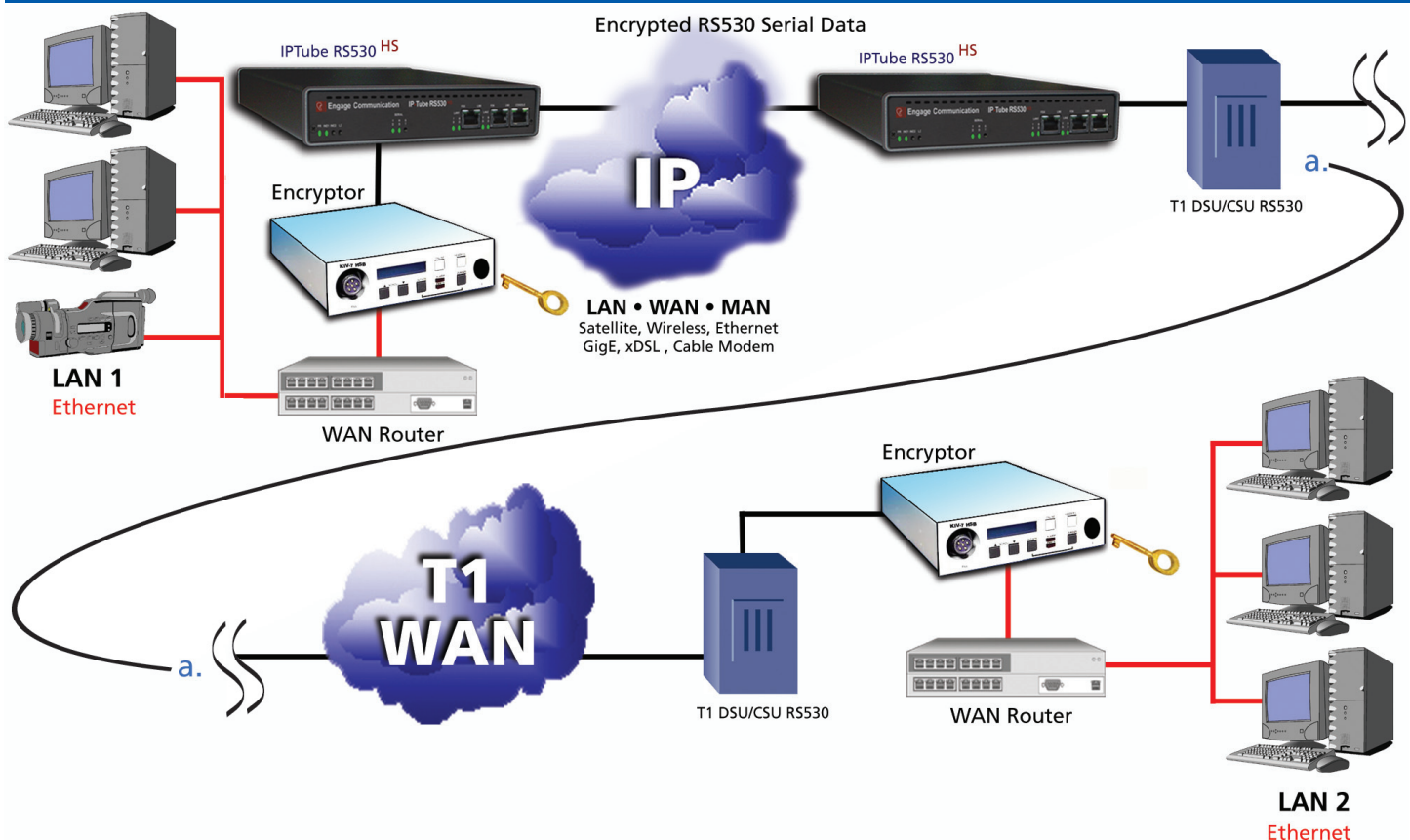
IP•Tube RS530HS for Encrypted Data Over Internet Protocol Connections

Defense and other Government agencies and Contractors face an ever-increasing need to establish Type 1 secure data communications links. These organizations often have access to flexible IP services such as Intranets, LANs, Metropolitan-Area Networks, WANs, or Wireless Ethernet. The Engage **IP•Tube•RS530HS** allows users to leverage existing Bulk Data Encryption Modules for use over IP/Ethernet connections. Encrypted Data over IP with the **IP•Tube•RS530HS** is a very economical solution that leverages a proven installed base.

Encrypted Bulk Data-over-IP utilizing the **IP•Tube•RS530HS** is an economical "Purpose Built" proven solution that leverages an installed base of high-performance INFOSEC devices. Approved Data Encryptors for use with the **IP•Tube•RS530HS** include:

KIV-7 KIV-7M KIV-19 OMNI KG-84

Flexible Synchronous Serial Data Extensions over IP



Flexible Synchronous Serial Data Extension Over IP

The **IP•Tube•RS530HS**, whose synchronous serial interfaces are configurable as DCE or DTE, facilitates the transport of bulk data across a combination of IP and WAN infrastructures. The **IP•Tube•RS530HS**'s flexibility supports internetworking across varied LAN/WAN/MAN/Satellite networks. The size and frequency of the IP packets can be set with data bit rates from 2.4 Kilobits per second to 16 million bits per second. Latency minimization is accomplished with multidimensional adaptive clock configurations.

Typical Applications

- Secure LAN to LAN interconnect
- Secure Video TeleConferencing
- Field Command Centers
- Secure Wireless Bridge connections
- SIPRNet or NIPRNet access

WAN Data Over IP

The **IP•Tube•RS530HS** provides a transparent bandwidth regulated IP Tunnel for interconnecting remote Networks. With the **IP•Tube•RS530HS** WAN security provisioning, such as firewalling, is maintained. WAN Protocols, such as PPP and Frame Relay, that utilize HDLC framing are encapsulated with HDLC Over IP. Broadband Service providers are able to transport Enterprise Wide Area Network connections with inband management of the Committed Information Rates. The **IP•Tube•RS530HS** IP Tunnel can also be utilized as a secondary path for fault tolerant mission critical applications.

IP•Tube•RS530HS Standard Features

Clocking, Latency and Bandwidth

The **IP•Tube•RS530HS** units are used to interconnect Synchronous Serial Data connections across Ethernet. Since Ethernet does not provide a common clock, an application appropriate method needs to be used to ensure that the clocking of the data out of one DTE and into the other DTE is not overrun or underrun. Additionally latency and overhead for the connection of data networks needs to be taken into account.

The Engage **IP•Tube•RS530HS•DCE** provides the clocking to their attached Data Terminal Equipment - DTEs. SCTCLOCK is used to clock Send Data from the DTE into IP packets that are sent to the interface S1's TUBE ADDRESS. SRCLOCK is used to clock the IP payload packet data from the buffer memory into the DTE. The **IP•Tube•RS530HS•DCE** has a sophisticated adaptive clocking circuitry that supports the smooth synchronous clocking required by Video Codecs and configurations that minimize latency and overhead.

Assured Delivery Protocol

In order to assure that circuits are extended over connections with fault tolerance the **IP•Tube•RS530HS** has as a standard capability an Assured Delivery Protocol that supports high performance full duplex real time data. The protocol has packet out of sequence detection and re sequencing, duplicate skipping, and real time lost packet retransmission with configured delay.

Service Quality Packet Prioritizing

The **IP•Tube•RS530HS** uses the Type of Service byte in the IP packets to prioritize the encapsulated data. The setting of the TOS byte can be used to ensure that the data from the **IP•Tube•RS530HS** is ensured high priority.

User Interface

Management of the **IP•Tube•RS530HS** 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.

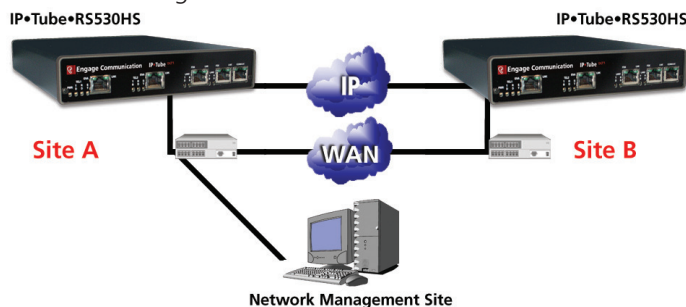
Dual LAN Interfaces

All **IP•Tube•RS530HS** models ship with dual 10/100BaseT Ethernet LAN ports. The dual Ethernet interfaces provide for:

- Management interface on LAN port 2 when LAN port 1 is connected to a VPN tunnel
- The LAN ports can be configured to support connections over 2 opposite ADSL links
- **Protector Option** for Redundant Packet Path connections with Constant or Switch Over Criteria

VPN Network Management

The **IP•Tube•RS530HS's** second 10/100BaseT Ethernet interface provides a management port when interconnecting the **IP•Tube•RS530HS** through a Virtual Private Network. Each LAN interface of the **IP•Tube•RS530HS** features independent IP network configurations.



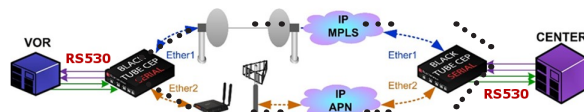
IP•Tube•RS530HS Optional Features

Redundancy: LAN Connections Protector Option (-PRO)



LAN Failover – 2 Independent IP/Ethernet Paths

- **Primary connectivity over IP MPLS**
- **Auto Failover to Cellular Backup on failure of Primary**
- **Auto Failback upon restoration of Primary path**



Technical Specifications

LAN Network Interface:

- Two 10/100 BaseT Ethernet

LAN Network Protocols Supported:

- IP, TCP, UDP, ICMP, Telnet

RS530 Interfaces:

- 1-2 DCE/DTE Standard DB25 Female Interfaces
- DTR Controllable Transmission
- CD Reception Indicator

RS530 Interface Clocking:

- 2.4k to 16 million bits per second data rate
- N times 2.4K/56K/64K Clock Modes

RS530 Over IP Protocol:

- Circuit Extension Services Over IP - CESOIP
- HDLC Over IP - HDLCOIP

Regulatory:

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

Quality of Service Support:

- IP Type of Service (TOS) CLI configurable
- IANA Registered UDP Port 3175

Management:

- Telnet support with Edit and Paste Template Files
- Console Port: RJ 45 to DB 9 Male Adapter provided.
- SNMP support (MIB I, MIB II) Configured Traps
- Remote configuration, monitoring, & reset.



TFTP Online Upgrade Capable (FLASH ROMs)

- IPTube is fully operational during upgrade

Power:

- 12/24 VAC/DC 1.0A International Adapters Available
- Optional 12-36 VDC 1.0 Amp
- Optional -48V 0.25 Amp

Dimensions: • 9" (L) x 7.3" (W) x 1.50" (H)

Rear Panel DCE/DTE

Power: 12/24 VAC/VDC AC ADAPTER



Rear Panel DCE/DTE

Power (redundant): +24 VDC or -48VDC



Rack Mount Kit

The IP•Tube products are easily installed in 19" and 23" racks with the Rack Mount Kit. Easy access to both front and rear sides facilitates technician maintenance procedures.

How to Order — IP•Tube RS530HS

Part No.	Description	Notes
040-1530	IP•Tube RS530HS-DCE/DTE	Configured DCE or DTE Interface
-PRO	Protector Option	Fault Tolerant Network Interconnect
Power Options		Specify as suffix
-DCMOD	Power Supply 12/26 VDC/VAC	Universal Adapter 100/240 50/60
-WIRED	Power Supply Module 12/26 VDC Term	Screw Terminals
-N48VDC	Power Supply Module Negative 48V DC	Isolated Negative 48V Power
Rack Mount Option		
-RACKMNT	19/23" Wide Rack Mount Brackets	Enclosure Nut Certs Installed