



PTP-WING | WIDEBAND ISOCHRONOUS SERIAL/NETWORK GATEWAY

The PTP Wideband Isochronous Serial/Network Gateway (PTP-WING) transparently receives, packages, and forwards a wideband isochronous serial data stream for transport across an IP or ATM-based Wide Area Network (WAN). Concurrently, the PTP-WING un-packages isochronous serial data received via the WAN for retransmission through a high-speed serial interface. PTP-WING is ideal for time-dependent isochronous data communications applications such as satellite payload data transport, in which a fast, steady, uninterrupted data stream is of the utmost importance. A configuration of two PTP-WINGs, one on each side of a standard IP or ATM network segment, can replace expensive dedicated or leased lines in a distributed satellite ground network.



High Variable Rate Payload Data Transport

The PTP-WING is often deployed to support transport of mission payload data from the ground station to the mission operations center at rates far higher than the standard High-Speed Serial Interface (HSSI) rate of 51 Mbps. In addition to its support of data rates up to 800 Mbps, the PTP-WING system is designed to accommodate the inherent satellite downlink data rate fluctuation that most standard network access equipment cannot tolerate.

Bulk-Encrypted Payload Data Support

Sensitive payload data is often bulk-encrypted on the spacecraft before downlink, so it cannot be frame-synchronized or decoded by equipment at the ground station. In this scenario, the PTP-WING can operate as a “bent pipe”, transparently forwarding encrypted payload data to the mission operations center for decryption prior to processing. At the operations center, a second PTP-WING performs reconversion of the data packets/cells to the serial format required by most decryptions.

Easy Local and Remote Configuration

The PTP-WING can be controlled locally or remotely via an intuitive Graphical User Interface (GUI). A remote control library is provided for integration with satellite control systems such as OS/COMET and EPOCH 2000, and an SNMP agent is available to facilitate integration with management platforms such as HP OpenView.

Configurable Platform Architecture

The PTP-WING is available in a industrial 4U chassis featuring dual Intel Xeon processors and redundant power, cooling, and onboard storage. The base system contains a single High Speed Serial I/O (HSIO) interface, a single Gigabit Ethernet WAN interface, and an optional WAN interface. The HSIO interface provides a single ECL differential data/clock pair input and dual ECL differential data/clock pair outputs. Application-specific configurations with multiple serial interfaces and/or multiple WAN interfaces in the same unit can be provided.

Key Features

- 800 Mbps serial-to-IP or serial-to-ATM conversion
- 800 Mbps IP-to-serial or ATM-to-serial conversion
- TCP, UDP, or IP multicast encapsulation when using IP WAN
- ATM AAL 5 encapsulation when using ATM WAN
- Simplex or duplex operation
- Automatically adapts to changing receive rates
- Retransmits data out at the originally received rate with adaptive rate tracking
- Identifies lost PDUs or network packets and inserts user fill patterns
- Built-in network monitoring and bit error rate test (BERT) capabilities
- Robust handling of data source and network problems
- TCP/IP socket interface and SNMP for network monitor and control
- Intuitive, full-featured GUI

Ingenicomm, Inc. is a leading provider of ground and range equipment and enterprise engineering services for civil and commercial aerospace programs, as well as the defense and intelligence communities. To learn more about Ingenicomm's service and product offerings, visit <http://www.ingenicomm.net> or contact Ingenicomm at info@ingenicomm.net or +1-703-943-7236.



Serial I/O Interface

- Data rates from 100 bps to 800 Mbps per channel
- Single ECL clock/data reception
- Dual ECL clock/data transmission
- Differential ECL female triax or SMA connectors
- Independently selectable transmit and receive clock/data inversion

WAN Interface Options

- ATM DS-3
- ATM OC-3 (multimode or single mode fiber)
- ATM OC-12 (multimode or single mode fiber)

LAN Interface

- 10/100/1000/Ethernet (fiber or copper)
- 10GB Ethernet (fiber or copper)
- Gigabit Ethernet interface for network monitoring & control

Packetizer/Re-Serializer

- Converts 800 Mbps serial to ATM or IP
- Converts ATM or IP to 800 Mbps serial
- TCP client/server or IP Class D multicast when using IP WAN
- Simplex or duplex operation
- Automatically adapts to changing receive rates
- Identifies lost PDUs and inserts user fill pattern

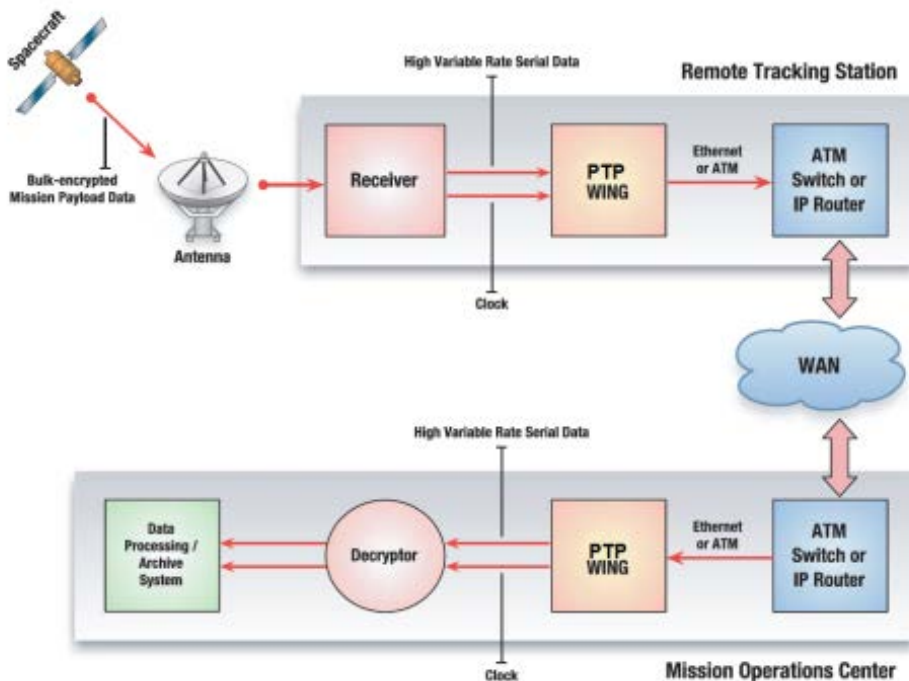
- Retransmits data out via the serial interface at the originally received rate with adaptive rate tracking
- Inserts user fill pattern on serial output underflow
- Built-in network monitoring and test tools
- Robustly handles data source and network problems

Onboard Bit Error Rate Tester

- 31 different pseudo-random patterns
- Pattern depths of 255 bits to 4096 Megabits
- Block error injection
- Walking bit error injection
- Continuous bit error injection of specified rate

Monitoring & Control

- TCP/IP socket interface for network monitoring and control
- Included remote control library for integration with satellite control systems such as OS/COMET and EPOCH 2000
- SNMP agent for SNMP-based monitoring and control via platforms like HP OpenView
- Full-featured, intuitive graphical user interface



In this "bent-pipe" configuration, two PTP-WINGS are deployed on either side of an IP or ATM-based WAN. Encrypted mission payload data is transparently forwarded via IP or ATM to the mission operations center, where it is reconverted to high rate serial data for decryption and processing.

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