

Network Gateway transports data streams over wide area networks

Serial and IP telemetry and command data

Packet FEC algorithms improve performance

Optional WAN emulation supports testing



softFEP™

Network Front End Processor

- **WAN Gateway.** The softFEP Network Front End Processor connects control centers and remote ground terminals over their wide area networks. With support for multiple protocols, the Network FEP is configurable to a range of communications system architectures.
- **Supported Devices.** Network FEPs connect to modems, routers, switches, COMSEC devices, and other front end processors.
- **Serial to IP Conversion.** Serial data streams are received and packetized. A configurable set of parameters allows the user to set the desired latency for given data rates, WAN jitter, and WAN bandwidth. IRIG time information can be re-generated with the original time-data correlation.
- **WAN Protocols.** TCP, UDP, WANFEC, NORM, and PGM are supported.
- **Packet FEC Algorithms.** WANs with high latency can utilize the softFEP Packet Forward Error Correction. The Packet FEC uses encoding and interleaving of the data streams to perform error recovery over the WAN without retransmission.
- **CCSDS Space Link Extension.** Networks using SLE for communications utilize the softFEP's SLE User and SLE Provider. There's full support for the CCSDS standard, including both Orange and Blue Books.
- **WAN Emulation.** The softFEP Network Front End Processor can be configured with a WAN Emulator for pre-deployment testing. The WAN Emulator allows you to characterize your system's behavior by inducing packet loss, latency, and jitter in various network communications test scenarios.
- **Web-based User Interface.** The softFEP app has a user-configurable graphical user interface (GUI) for standalone operations. The user interface runs in a web browser window enabling the softFEP to be controlled remotely. The customer can modify, change, and extend the user interface screens.
- **Software Application Programming Interface.** A software API allows customers to support the softFEP app from their monitor and control application. The softFEP uses the Ground Equipment Monitor Standard (GEMS) for this interface.



Reliably connect control centers and ground terminals

Functional Specification	
IP Protocols	TCP UDP WANFEC NORM PGM
SLE Services	RAF, RCF Offline Playback FCLTU, EFCLTU PLOP-1, 2, 3
Packet FEC	Reed Solomon
Max IP Data Rates	> 3.2 Gbps
Serial Data Rates	Up to 20 Mbps per stream for RS-422 Up to 200 Mbps per stream for LVDS Up to 1 Gbps per stream for ECL
Time References	IRIG, NTP
WAN Emulation	Bandwidth Jitter Latency Packet Loss

Interface Specification	
Ethernet Ports	2 1-GigE, Expandable to 6 Optional 10 GigE ML
Serial Ports	5 Full Duplex Expandable to 10
Serial Electrical Interface	RS-422, LVDS, ECL
Clock/Signal Polarity	Configurable
Optional Connector Panel	DB-9 DB-25 RJ-45 SMA

Physical Specifications	
Dimensions	1.75" (H) x 20" (D) x 17.5" (W)
Power	120 VAC, 50/60 Hz, 350 Watts
Temperature	5-30°C Operating 0-35°C Non-Operating
Humidity	< 90% Non-Condensing