**DATUM SYSTEMS**

New Multi-Function Ethernet IP & Dual G.703 Interface

PSM-500 Series Modems

Datum Systems, a performance leader in satellite modems, is pleased to announce the release of a new multi-function data interface for model PSM-500 Series modems. This new interface hardware supports an Advanced Ethernet IP or Dual G.703 E1 interface, or can be populated with both interfaces simultaneously. Interface types are then easily selectable through the front panel, web browser, SNMP or serial remote interface.
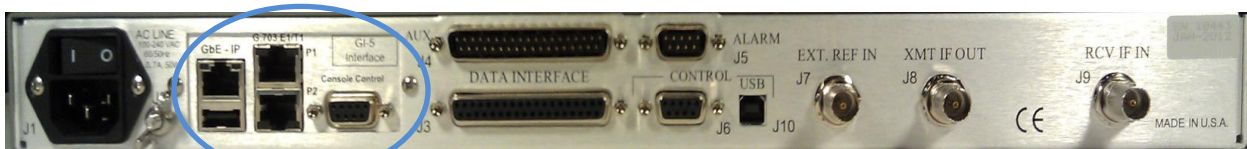
Multi-Function Interface
Datums' Multi-function interface hardware is equipped to support both Advanced Ethernet IP, which is referred to as the "I5 Hardware Configuration" and a Dual Port Full/Fractional E1/G.703 Interface, which is referred to as the "G5 Hardware Configuration". Although the I5 and the G5 configurations share the same base hardware assembly, the I5 Hardware configuration, however, requires an additional plug-in IP Processor Card.

Optional Advanced Ethernet IP Interface:
The Advanced Ethernet IP Processor plug-in consists of a small industry standard "Qseven" processor card and contains a complete state-of-the-art x86 based embedded Linux computer. The Intel Atom based core is able to meet the demanding needs of a sophisticated router and provide exceptional packet-per-second throughput. The processor card supports a fully integrated Vyatta Router and industry standard networking protocols. This advanced processing platform also provides the resources needed for advanced embedded optimization solutions.

IP Processor Application Overview:

- Interface between IP Ethernet networks and satellite modems
- Supports 10/100 Base-T and Gigabit Ethernet
- Powerful x86 Atom processor based. Up to 1.6 GHz with dual virtual processors.
- Robust Debian Linux Operating System – currently modified Debian "Squeeze".
- Industry Standard Vyatta Router overlay on Linux for IOS/JunOS like control. One major advantage of Vyatta is that it provides a clean single point configuration interface and saved configuration file.
- The Vyatta Router provides an industry standard open source router facility
- Datum System's modifications and additions to both Linux and Vyatta also provide modem command line and web control.

Although more complex than the previous generation SnIP interface, this system offers significant advantages. Not only does it use an industry standard router subsystem, but the full power of Debian Linux is available including many languages (like Python), standard compilers and the Debian packaging system. An installed system is even capable of compiling its own programs.

Advanced IP Rear Panel and Feature Summary:

Advanced Ethernet IP Interface
Gigabit Ethernet on RJ-45
Bridge Mode
Vyatta Router
Quality of Service
34,000 PPS
Xiplink Optimization Option
TCP/IP Acceleration (SCPS) (10 Mbps Max Aggr.)
Streaming Compression
UDP Header Compression, Packet Aggregation
IPsec Encryption/Tunneling
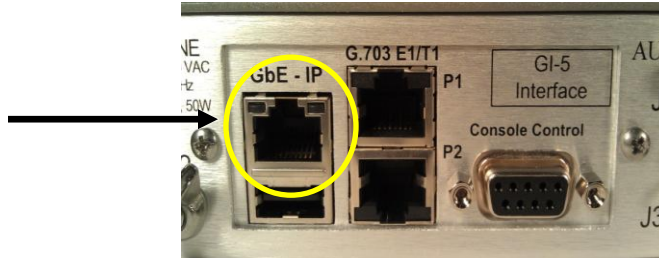
Supported Networking Protocols

RFC 768	UDP	RFC 2474	Diff Serv
RFC 791	IP	RFC 2475	Diff Serv
RFC 792	ICMP	RFC 2578	SMI
RFC 793	TCP	RFC 2597	AF PHB
RFC 826	ARP	RFC 2598	Expedite Forwarding
RFC 856	Telnet	RFC 2616	HTTP
RFC 862	Ping	RFC 3095	Profile 2 (IP/UDP)
RFC 894	IP	RFC 3412	SNMP
RFC 959	FTP	RFC 3416	SNMPv2
RFC 1112	IP Multicast	RFC 3418	SNMP MIB II
RFC 1213	SNMP MIB II	IEEE 802.1p	QoS Prioritization
RFC 1812	IPv4 Routers	IEEE 802.1q	VLan Support
RFC 2045	MIME		
RFC 2236	IGMPv2		

Optional G.703/E1 Interface:

G.703/E1 is a legacy interface standard that is used in Telephony and Cellular Backhaul applications. The installation of the G5 hardware option (G.703/E1) interface provides the M500 Class modems (PSM-500/500L/500LT) with an economical access solution for E1 and Fractional E1 network services over satellite. The G5 fully meets all of the E1 specifications including ITU recommendations:

- G.703 - Physical/electrical characteristics of hierarchical digital interfaces
- G.704 - Synchronous frame structures
- G.706 - Frame alignment and cyclic redundancy check (CRC) procedures relating to basic frame structures defined in Recommendation G.704
- G.723- Characteristics of primary PCM multiplex equipment operating at 2048 kbit/s
- G.823 - The control of jitter and wander within digital networks which are based on the 2048 kbit/s hierarchy

The Full E1 mode allows for transmission of a 2.048Mbps input data stream without synchronizing to the imbedded framing of the E1 signal. In this unframed mode, the rate over the satellite will be the full 2.048Mbps of data.

The Fractional E1 mode allows for transmission of Nx64kbps data to be transmitted over the satellite. The G5 interface supports a flexible selection of the number of timeslots to be transmitted and for selection of standard signaling formats.

- PCM-30 CAS (Channel Associated Signaling) (Nx64Kbps, N = 1 to 15, 17 to 31 TS).
- PCM-31 CCS (Common Channel Signaling) (Nx64Kbps, N = 1 to 31 TS).

G.703 Interface Overview:
- Single or Dual port G.703/E1 (Balanced 120 Ohm, RJ-48)
- Unbalanced: 75 ohm impedance using an external 120 ohm to 75 ohm converter (i.e. Balun-B2S)
- Unframed & Fractional E1 operation
- Formats Supported: Full E1, PCM-30 (CAS) or PCM-31 (CCS) modes
- Data rate: User selectable N x 64Kbps, N = 1 to 31 Time Slots
- Fully transparent signal conversion under unframed mode
- Selectable AMI or HDB3 Line Coding
- CRC4 ON/OFF modes
- Diagnostic Loopbacks for both Terrestrial and Satellite side
- All 1's Monitor and Alarms (AIS)

Dual Port G.703/E1 Rear Panel and Feature Summary:
An optional Dual G.703 E1 Fractional or Unframed Full E1 interface (Model G5) provides drop and insert functionality (Nx64) in both PCM-30 (CAS) and PCM-31 (CCS) formats.
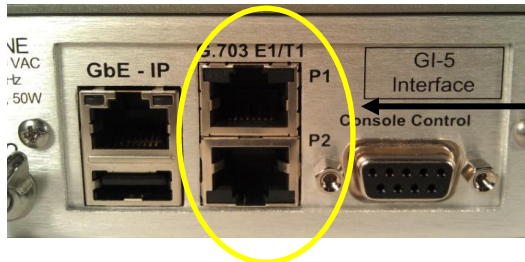
Dual Port G.703/E1 Interfaces
Dual Input Port 1 & Port 2 on RJ-45's
Dual G.703 Full and Fractional E1*
Drop & Insert (Nx64) N= 1-31
*PCM-30 (CAS) Format, FAS, MFAS
*PCM-31 (CCS) Format, FAS
AMI or HDB3 Line Coding
CRC ON/OFF