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PowerVu® Model D9140 Advanced Multiplexer

Description

Scientific-Atlanta's PowerVu® Advanced Multiplexer combines signals and encrypts data with optional standards.

The PowerVu Advanced Multiplexer combines up to 24 MPEG-2 transport streams, encrypts each individual service, and provides three identical MPEG-2 transport outputs to Scientific-Atlanta's PowerVu Model D9390 Advanced Modulator or various other modulators for cable and terrestrial applications. Transport packets are transferred from each encoder or each transport stream receiving device to the multiplexer using a DVB-ASI interface. Communication control between the multiplexer and the PowerVu Network Centre is facilitated via an Ethernet link.

Features

- Allows connection of up to 24 simultaneous MPEG-2, DVB, and ATSC contribution streams through DVB-ASI coaxial connectors
- Supports multiplexing of variable and constant bit rate encoded video programs
- Combines all MPEG-2 transport streams into a final effective data rate of up to 213 Mb/s
- Provides for encryption of individual services with non-deterministic random encryption seeds
- Supports DES or DVB scrambling
- Provides output stream via three identical DVB-ASI coaxial connectors
- Allows Ethernet connection to PowerVu Network Centre or certain other network management systems for configuration and receiver database control
- Supports redundant power supplies

Card Descriptions

Model D9751 Clock and Mux Card

This card's primary responsibility is the multiplexing of services into a single MPEG-2 transport stream. It communicates with the control and conditional access card to receive diagnostic and status information from all other cards, which is then forwarded to the PowerVu Network Centre. The MSYNC input is used to synchronize all service clocks and may be referenced to the master studio clock. MSYNC is available from the PowerVu Model D9262 Master Sync Generator.

This card provides an Ethernet connection allowing communication with the PowerVu Network Centre, or another network management system. Form C contact closure alarms are provided to indicate Minor, Major, and Power faults.

Model D9719 ASI Input Card

All services generated within a single PowerVu Advanced Encoder are transferred as MPEG-2 transport packets via the DVB-ASI Input card BNC interface. This card has the ability to receive a MPEG-2 transport stream from a MPEG-2 receiver device, select desired PIDs and filter others so that the output from the multiplexer only includes the desired services. Each receive card accepts up to eight DVB-ASI inputs and is also capable of accepting other MPEG-2 compliant data streams, such as PowerVu *IP*™ data streams. A maximum of three cards can be inserted into the chassis to increase the number of available inputs to 24.

Model D9754 Control and Conditional Access Card

The Control and Conditional Access card residing in the D9140 PowerVu Advanced Multiplexer chassis provides the configuration and control function for all other cards.

Conditional access information generated by the PowerVu Network Centre is passed to the multiplexer via an Ethernet connection on the clock and multiplexer card through the mid plane bus to this card. Each video, audio, or data service is assigned a unique packet identifier (PID) and is independently encrypted by the system. This level of control allows unique access levels for each decoder.

Model D9747 DES Scrambler Card

The DES Scrambler Card is an auxiliary card that provides the capability of scrambling services using the DES scrambling algorithm.

Model D9748 DVB Scrambler Card

The DVB Scrambler is an auxiliary card that provides the capability of scrambling services using the DVB Common Scrambling algorithm.

Model D9742 Data Interface Card

Auxiliary data services in the PowerVu system are handled by the Data Interface card. This card accepts up to four asynchronous data services and four high-speed services.

Asynchronous, or low-speed data, is accepted at RS-232 levels and rates from 300 to 38,400 baud.

Specifications

Feature	Description	
Inputs	DVB-ASI inputs Provides connectivity for contribution streams Connector: BNC (75Ω)	
Ethernet	Communication link to the PowerVu Network Centre or another network management system for transmission of system configuration and status information based on standard specification SNMP V2C.	Type: 10 Mb/s analog, SNMP v2C Connector: RJ-45 (10Base-T)
Outputs	DVB-ASI outputs Multiplexed transport stream for connection to QPSK or QAM modulators, or Telco Interfaces (3 identical outputs provided) Connector: BNC (75Ω)	Alarms Contacts Type: Form C contacts Connector: Spring terminal block Alarms: Minor alarm, major alarm Contacts: 2 sets (NC, Common, NO)
MSync	Synchronizes multiple chassis to a single studio reference clock Connector: BNC (75Ω)	
Environmental /Physical	Operating Temperature: 0°C to 40°C (32°F to 104°F) Storage Temperature: -20°C to 60°C (-4°F to 140°F) Relative Humidity: 0% to 95% non-condensing	Physical Dimensions: 5.25 in. H x 19.0 in. W x 25 in. D (13.3 cm H x 48.3 cm W x 63.5 cm D) 3U high, 19 in. rack mountable
Power	Voltage Range: 100 V to 240 V AC ±10% nominal Line Frequency: 47 Hz to 63 Hz	Power Consumption: 775 W max.
Options	D9742 Data Interface Card Asynchronous Data Inputs Channels: 4 independent Type: RS-232E RJ-45 Rates: 300, 1200, 2400, 4800, 9600, 19200, 38400 b/s Format: Data transmitted as 8 bits, no parity, 1 stop bit	Synchronous Data Inputs Channels: 4 independent Type: RS-422, differential 5V inputs (clock & data), 9-pin D-sub male

Ordering Information and Standard Configuration

The PowerVu Advanced Multiplexer chassis assembly (part number 801-521) contains the following cards as a standard configuration. In addition, it is equipped with redundant power supplies.

Slot No.	Front Cards	Rear Cards
1	D9747 or D9748 Scrambling or Blank Panel	D9742 Data Interface or Blank Panel
2	D9754 Control and Conditional Access	D9751 Clock and Multiplexing
3	Blank Panel	Blank Panel
4	Blank Panel	D9719 ASI Input
5	Blank Panel	D9719 ASI Input or Blank Panel
6	Blank Panel	D9719 ASI Input or Blank Panel

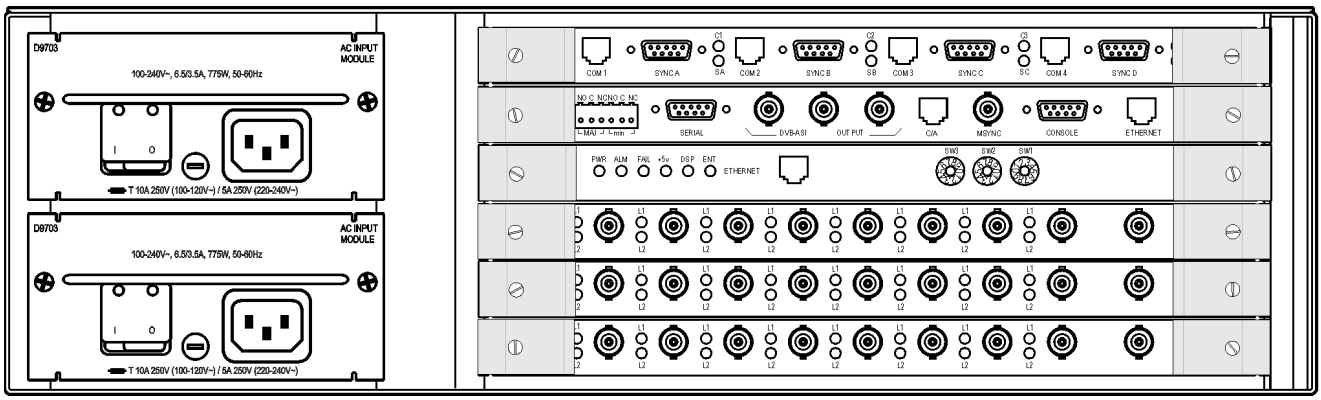
List of Advanced Multiplexer Cards

Part Number	Front Cards
4008470	D9751 Clock and Multiplexing
767-002	D9754 Control and Conditional Access
767-006	D9719 ASI Input
767-007	D9747 DES Scrambler
767-008	D9742 Data Interface
767-009	Blank Panel
767-015	D9753 Control
767-016	D9748 DVB Scrambler

Notes:

1. D9747 DES or D9748 DVB scrambling cards require installation of the D9754 Control and Conditional Access card.
2. Each ASI input card supports up to eight ASI inputs. To support a maximum of 24 ASI transport stream inputs, three cards must be installed (8 inputs per card).

D9140 Advanced Multiplexer Rear Panel



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