PowerVu®

Model D9850 Program Receiver

Description

The PowerVu® Model D9850 Program Receiver is designed for satellite content distribution applications requiring 4:2:0 video decoding. The receiver offers the capability to receive digitally encrypted video, audio, utility data, and Vertical Blanking Interval (VBI) data.

Analog Cable Program Distribution

Composite video and balanced audio outputs can be connected to analog modulators for analog cable distribution. Four mono audio channels or two stereo pairs are available for primary audio programs and/or secondary audio programs (SAP). For example, primary program audio could be carried on one of the stereo pairs, while SAP audio is carried on the other stereo pair.

Digital Cable Program Distribution

An uplink-addressable transport output provides MPEG program streams for digital tier program delivery. This ensures that the highest quality video programs are efficiently distributed to households equipped with digital set-top boxes.

Digital Program Replacement

Digital program replacement (DPR) allows a programmer to seamlessly switch their primary service to an alternate service in the digital domain in blackout applications for cable digital tier distribution. This feature remaps the PID information from the primary service to an alternate service allowing downstream devices to continue to operate seamlessly. This ensures availability of alternate programming in the digital tier without operator intervention. See the Ordering Information for the receivers (part numbers) supporting this feature.

Cable Headend Ad-insertion

To support flexibility in ad-insertion configurations, this receiver provides four types of outputs:

- Dual Tone Multi-Frequency (DTMF) cue tone
- Cue trigger support, consisting of eight open collector outputs
- One contact closure
- Digital Program Insertion (DPI) messaging via ASI output

Low-speed Data Output

An asynchronous utility data up to 38.4 kb/s is available via RS-232 interface.

IP Data Output

IP data can be received and output at rates up to 10 Mbps (up to 50 Mbps optional).

Key Features

- PowerVu conditional access with DES or DVB descrambling
- Supports Basic Interoperable Scrambling System (BISS) conditional access
- 4:2:0 NTSC & PAL (B/G/I/D/M/N) video decoding
- Aspect ratio conversion (4:3, 16:9 and 14:9) with Active Format Descriptor (AFD) control
- MPEG & Dolby® Digital (AC-3) audio decoding
- Four audio outputs providing either two stereo pairs (four mono channels) of balanced audio each with the ability to use part of their output for applications such as SAP, DTMF, etc.
- Line 21 closed caption and V-chip support
- Utility data via RS-232
- IP Data output via Ethernet (up to 10 Mbps)
- DVB VBI (WST, WSS and VPS)
- PowerVu VBI - including North American Broadcast Teletext Standard (NABTS) and World System Teletext (WST)
- DVB or Imitext™ subtitling
- DTMF cue tone & cue trigger outputs for ad-insertion

Model D9850 Program Receiver

Features, continued

- Fingerprint Trigger
- Field upgradeable software and security
- Front panel LCD for control & monitoring
- 64 user-editable preset configurations
- Uplink addressable transport output via DVB-ASI
- SNMP setup, control and monitoring
- Web browser interface for easy setup, control and monitoring

Optional Features

- 4 RF inputs
- ASI input (up to 68.5 Mbps)
- Digital Program Replacement providing uplink control of program replacement in blackout areas
- SDI video output with embedded audio
- AES-3id digital audio output
- IP data output (up to 50 Mbps)

Specifications

Features	Description	
System	MPEG-2/DVB Compatible EN 300 421, EN 300 468	**De-modulation:** QPSK **FEC:** Variable (1/2, 2/3, 3/4, 5/6, or 7/8)
Tuner	**Input Level:** -25 dBm to -65 dBm per carrier **Frequency Range:** 950 MHz to 2150 MHz **Tuning Step Size:** 125 kHz **Symbol Rate Range:** 1.0 to 45 Msymbols/s	**Carrier Capture Range:** ≥ ±3.0 MHz (5-45 Msym) **Satellites:** C-band and Ku-band **Input Impedance:** 75Ω
Analog Outputs	**Analog Video Output** **Number of Channels:** One (two identical outputs) **Video Decompression Type:** MPEG-2 4:2:0 **Output Level:** 1.0Vpp ± 5% **Output Impedance:** 75Ω **Video Standard:** NTSC & PAL B/G/I/D/M/N **Frequency Response:** NTSC: 0.0-4.2 MHz ≤ +0.5 dB/-0.75 dB PAL: 0.0-5.0 MHz ≤ +0.5/-1.25 dB **Maximum Video Resolution:** 720x480/576 **Maximum Video Bit rate:** 15 Mb/s **Chroma-luma Delay:** ± 30 ns **Field Time Distortion:** ≤ 3% **Line Time Distortion:** ≤ 3% **Luminance Non-linearity:** ≤ 5% **Differential Gain:** ≤ 3% **Differential Phase:** ≤ 3° **Signal-to-Noise Ratio:** ≥ 55 dB	**Analog Audio Output** **Number of Channels:** Two stereo pairs/ four mono channels **Audio decompression:** MPEG or Dolby Digital (AC-3) **Output Level:** Balanced, adjustable audio outputs are factory set for unity gain (0 dBm out over 600Ω for 0 dBm in). Output is adjustable at the front panel by ±6.0 dB (ref., 100 KΩ). Factory calibrated to +18 dBu (at full scale). **Frequency Response:** ±0.5 dB, 20 Hz to 20 kHz (ref., 100 KΩ) **Total Harmonic Distortion:** < 0.3% at 1 kHz (ref. 100 KΩ) **Dynamic Range:** 85 dB (CCIR/Arm weighting) **Crosstalk:** 80 dB at 1 kHz (typical)
VBI	NTSC lines 10 to 22 fields 1 and 2 Line 21 closed captions NABTS, AMOL I and II (Nielsen)	PAL lines 7 to 22 fields 1 and 2 WST, WSS, VPS

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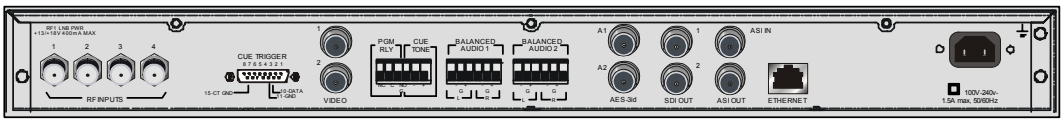
Features	Description	
Data Outputs	RS-232 asynchronous data at rates up to 38.4 kb/s **Rates:** 300/1200/2400/4800/9600/19,200/38,400 b/s	**Ethernet Output for IP data** RJ-45, 10/100BaseT, up to 10 Mbps (up to 50 Mbps optional)
Other Outputs	**Cue Trigger Outputs** **Number of Outputs:** 8 **Type:** Open Collector **Cue Tone Output** **Balanced audio output:** -3.0 dBu ±3 dB, 600Ω **Output Impedance:** < 50Ω	**Ethernet Output for Control & Monitoring** RJ-45, 10/100BaseT **MPEG-2 Transport Output** EN 50083-9, DVB-ASI coaxial, 188 byte packets **Programmable Relay Output** Alarm or configurable to one of the 8 open collector outputs
Optional Inputs/Outputs	4 RF inputs **MPEG-2 Transport Input** EN50083-9, DVB-ASI coaxial, 188/204 byte packets	**Two SDI Video Outputs (with embedded audio, 1 video channel)** BNC, SMPTE-259MC **Two Digital Audio Outputs (one stereo channel each)** BNC, AES-3id
Environmental/ Physical	**Operating Temperature:** 0°C to 50°C (without SDI option) (32°F to 122°F) **Storage Temperature:** -20°C to 70°C (-4°F to 158°F)	**Physical Dimensions:** 1.75 in. H x 19.0 in. W x 15 in. D (4.4 cm H x 48.3 cm W x 38.1 cm D) 1RU high, 19 in. EIA rack mountable **Weight:** 10 lbs (4.5 kg) approx.
Power	**Voltage Range:** 100V to 240V AC **Line Frequency:** 50/60 Hz	**Power Consumption:** 50W max. **LNB Power on RF#1:** +13V/+18V @ 400 mA max.

1 RF Input
(Base Model)

4 RF Inputs
(with all options)



Ordering Information

Part Number	Description
6996968	1 RF Input, 10 Mbps IP, NA power cord
4003152	1 RF Input, 10 Mbps IP (NAP ISE), NA power cord
4006900	1 RF input, 10 Mbps IP, EU power cord
4006901	1 RF input, 10 Mbps IP, indicate country-specific power cord (select from table below)
4005966	4 RF Inputs, 50 Mbps IP, DPR, NA power cord
4005967	4 RF Inputs, 50 Mbps IP (NAP ISE), DPR, NA power cord
4006898	4 RF inputs, 50 Mbps IP, DPR, EU power cord
4006899	4 RF inputs, 50 Mbps IP, DPR, indicate country-specific power cord (select from table below)
4005964	4 RF Inputs, 50 Mbps IP, DPR, SDI video, AES-3id audio, ASI In, NA power cord
4005965	4 RF Inputs, 50 Mbps IP, DPR, SDI video, AES-3id audio, ASI In (NAP ISE), NA Power cord
4006896	4 RF Inputs, 50 Mbps IP, DPR, SDI video, AES-3id audio, ASI In, EU power cord
4006897	4 RF Inputs, 50 Mbps IP, DPR, SDI video, AES-3id audio, ASI In, indicate country-specific power cord (select from table below)

Country-specific Power Cords

Part Number	Description
3992137	UK power cord
3993136	Euro power cord
1001832	Australia power cord
1001790	Argentina power cord
1001800	Brazil power cord
745415	China power cord

NA - North American
EU - European
NAP - North American Pool
DPR - Digital Program Replacement

Scientific-Atlanta, Inc.
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Part Number 7002752 Rev G
January 2005