Cisco D9824 Advanced Multi Decryption Receiver

Product Overview

The Cisco® D9824 Advanced Multi Decryption Receiver (Figure 1) is designed for satellite and terrestrial content distribution applications requiring Digital Video Broadcasting - Satellite (DVB-S), Digital Video Broadcasting - Satellite - Second Generation (DVB-S2) reception capabilities and IP reception capabilities with advanced digital outputs for digital tier program distribution. A built-in decoder can decode an MPEG-2 or MPEG-4 Advanced Video Coding (AVC) high definition (HD) program for analog monitoring, or a standard definition (SD) down-conversion for composite. Decoding of an MPEG-2 or MPEG-4 AVC SD program is also available for analog. By supporting decryption of up to 32 Cisco PowerVu® encrypted programs, the Cisco D9824 receiver allows users to efficiently receive and distribute multiple programs through their network using a single receiver.

Figure 1. Cisco D9824 Advanced Multi Decryption Receiver

Digital Program Distribution

The Asynchronous Serial Interface (ASI) transport output provides a number of output modes and can carry decrypted programs for digital tier distribution. This capability helps ensure that compressed video programs are efficiently distributed to households equipped with digital set-top boxes.

Digital Program Mapping

Digital program mapping allows programmers to “transparently” substitute programs at the uplink. It maintains predictable and compliant transport output during service replacement, network information table (NIT) retuning, and channel changes, including forced tunings. This feature remaps the packet identifier (PID) information from the primary service to an alternate service, allowing downstream devices to continue to operate without headend operator intervention. This helps ensure availability of alternative programming in the digital tier.

Digital Advertisement Insertion

Digital program insertion (DPI) information is available with the video and audio PIDs for external advertisement insertion in a compressed digital format.

Main Features

- Four L-band inputs
- New H/W with up to 180 Mbps throughput/bandwidth
- MPEGoIP Input with Redundancy (1 MPTS or 1 SPTS)
- MPEGoIP Output with Redundancy (1 MPTS or 32 SPTS)
- DVB-S quaternary phase shift keying (QPSK) demodulation
- DVB-S2QPSK and eight phase shift keying (8PSK) demodulation

- Cisco PowerVu conditional access with Data Encryption Standard (DES) or DVB descrambling
- Support for Basic Interoperable Scrambling System (BISS) conditional access for a single key for 32 programs
- DVB Common Interface (DVB-CI) support for CAM-based conditional access
- 4:2:0 HD MPEG-4 AVC and MPEG-2 1080i and 720p decoding
- 4:2:0 SD MPEG-4 AVC and MPEG-2 decoding
- Aspect ratio conversion (4:3, 16:9, 14:9) with Active Format Descriptor (AFD) control for SD programs
- AFD support for down-conversion of HD programs with aspect ratio conversion
- ASI output
- Closed captioning support for EIA-608 and EIA-708
- MPEG and Dolby Digital (AC-3) audio decoding
- DVB or Imitext subtitling
- Four audio outputs providing either two stereo pairs or four mono channels of balanced audio, each with the ability to use part of the output for applications such as second audio program (SAP), cue tones, etc.
- Uplink addressable decoder output control, including vertical blanking interval (VBI) data, audio routing, DPI, and ASI output
- Fingerprint trigger for the decoded program
- Field upgradeable software and security
- Simple Network Management Protocol (SNMP) for setup, control, and monitoring
- Front panel liquid crystal display (LCD) for control and monitoring
- Web browser interface for easy setup, control, and monitoring
- DVB-VBI and SCTE-127 support
- Dual-tone multifrequency (DTMF) cue tone and cue trigger outputs for advertisement insertion
- Digital program mapping providing uplink control for service replacements in blackout areas
- Live event control support

Product Specifications

Table 1 provides product specifications for the Cisco D9824 Advanced Multi Decryption Receiver.

Table 1. Product Specifications

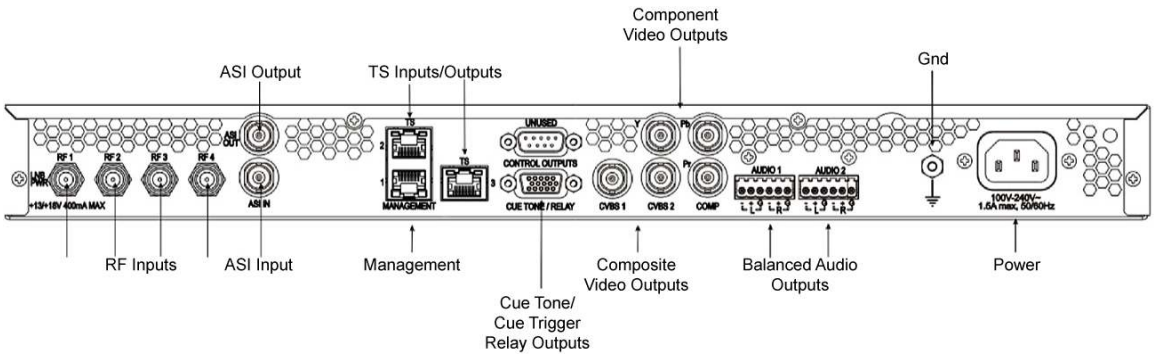
Feature	Description
System	
Standards	MPEG-2 and DVB compatible EN 300 421, EN 300 468
Demodulation	DVB-S QPSK, DVB-S2 QPSK and 8PSK
Tuner	
Number of RF inputs	4 (1 active at a time)
Input level	-25 to -65 dBm per carrier
Frequency range	950 to 2150 MHz

Feature	Description
Symbol rate range	• DVB-S: ◦ 1.0 to 45 Msymbols per second • DVB-S2 ◦ 10.0 to 30 Msymbols per second ◦ 1.0 to 10 Msymbols per second (contact Cisco)
Carrier capture range	≥ ±3.0 MHz (1-10 Msymbols) ≥ ±5.0 MHz (10-30 Msymbols)
Satellites	C-band and Ku-band
Input impedance	75 ohms
ASI input	
MPEG-2 transport input	EN50083-9, DVB-ASI coaxial, 188/204 byte packets
MPEGoIP Input	
Physical	RJ-45
Ethernet	100BASE-T Ethernet, and 1000BASE-T Ethernet
FEC	FEC based on SMPTE 2022 for MPEGoIP input
Input modes	UDP Raw, RTP , FEC
Analog Outputs	
Analog HD Video Output	
Number of channels	1
Video decompression type	MPEG-2 4:2:0 and MPEG-4 AVC 4:2:0
Video standard	1080i at 29.97 frames per second (fps), 1080i at 25 fps, 720p at 59.94 fps, and 720p at 50 fps
Horizontal video resolutions	1080i: 1920, 1440, and 1280 720p: 1280, 960, and 640
Analog SD Video Output	
Number of channels	1 (2 identical outputs)
Video decompression type	MPEG-2 4:2:0 and MPEG-4 AVC 4:2:0
Video standard	NTSC and PAL B/G/I/D/M/N
Maximum video resolution	720x480 and 576
Analog Audio Output	
Number of channels	2 stereo pairs or 4 mono channels and 5.1 channel downmix
Audio decompression	MPEG or Dolby Digital (AC-3) HE-AAC single stereo pair or Dolby Digital Plus single stereo pair
Output level	Balanced, adjustable audio outputs are factory set for unity gain (0 dBm out over 600 ohms for 0 dBm in). Output is adjustable at the front panel by ±6.0 dB (ref. 100 kilohms) and is factory calibrated to +18 dBu (at full scale).
Frequency response	±0.5 dB, 20 Hz to 20 kHz (ref., 100 kilohms)
Total harmonic distortion	< 0.3% at 1 kHz (ref. 100 kilohms)
Dynamic range	85 dB (CCIR average response meter [ARM] weighting)
Crosstalk	80 dB at 1 kHz (typical)
Aspect Ratio	
Display aspect ratios	4:3, 16:9
Aspect ratio conversions for down-conversion	**4:3:** 16:9 letterbox and14:9 letterbox, center cutout **16:9:** center cutout
Aspect ratio conversions for SD programs	**4:3:** 16:9 letterbox, 14:9 letterbox, center cutout, none **16:9:** Scale to 16:9

Feature	Description
VBI	
NTSC	• NTSC lines 10 to 22, fields 1 and 2 • Line 21 closed captions • NABTS • AMOL I and II (Neilsen) • VITC • WSS
PAL	• PAL lines 7 to 22, fields 1 and 2 • WST • WSS • VPS • VITC
Conditional Access	
Cisco PowerVu conditional access	DES or DVB
DVB descrambling	BISS Mode 1/E
DVB-CI	Interface: 2 CI slots - EN 50221 CA Method: Multicrypt, and Simulcrypt CAS: Irdeto, Viaccess, Nagravision, Conax, MediaGuard, Roscrypt, Videoguard and Cryptoworks
Other Outputs	
ASI Output	
MPEG-2 transport output	EN50083-9, DVB-ASI coaxial, 188/204 byte packets
MPEGoIP Output	
Physical	RJ-45
Ethernet	100BASE-T Ethernet, and 1000BASE-T Ethernet
Output modes	UDP Raw, RTP, FEC
FEC	FEC based on SMPTE 2022
Relay output	
Programmable relay output	Alarm or configurable to one of the 8 open collector outputs
Cue Tone Output	
Balanced audio output	-3.0 dBu ±3 dB, 600 ohms
Output impedance	< 50 ohms
Cue Trigger Outputs	
Number of outputs	8
Type	Open Collector
Ethernet Output	
Ethernet output for control and monitoring	100BASE-T Ethernet and 1000BASE-T Ethernet
Environmental and Physical	
Operating temperature	32-122℉ (0-50℃)
Storage temperature	-4-158℉ (-20-70℃)
Physical dimensions	1.72 x 17.35 x 13.78 in. (4.37 x 44.07 x 35.0 cm) 1RU high, 19 in., EIA rack mountable
Weight	10 lbs (4.5 kg) approximate
Power	
Voltage range	100 V to 240 V AC
Line frequency	50/60 Hz
Power consumption	50 W typical (without LNB)
Line-noise block (LNB) power on RF1	+13 or +18 V at400 mA maximum

Figure 2 shows the rear panel of the Cisco D9824 Advanced Multi Decryption Receiver.

Figure 2. Cisco D9824 Rear Panel



Ordering Information

To place an order, visit the Cisco Ordering Home Page. To download software, visit the Cisco Software Center. Table 2 provides ordering information.

Table 2. Ordering Information

Cisco D9824 Features	Part Number
1RU with GEN-ISE, HD, MPEG-4, BVB-S2 & MPEGoIP out	D9824-IPIN-GEN-1RU
1RU with MDR-ISE HD with MPEG-4, BVB-S2 & MPEGoIP out	D9824-IPIN-MDR-1RU

Table 3 provides ordering information on country-specific power cords.

Table 3. Ordering Information: Country-Specific Power Cords

Power Cord Descriptions	Part Number
North American Power Cord (US, IEC, 10AMP, 2.5m)	CAB-PWR-DMN-US
Japan Power Cord	CAB-PWR-DMN-JPN
China Power Cord (IEC)	CAB-PWR-DMN-CHN
Australia Power Cord	CAB-PWR-DMN-AUS
Italy Power Cord	CAB-PWR-DMN-IT
European Power Cord (EU)	CAB-PWR-DMN-EU
Brazil Power Cord	CAB-PWR-DMN-BRA
India Power Cord	CAB-PWR-DMN-IND
Argentina Power Cord	CAB-PWR-DMN-ARG
UK Power Cord (IEC, 10AMP, 2.5m)	CAB-PWR-DMN-UK

Service and Support

Using the Cisco Lifecycle Services approach, Cisco and its partners provide a broad portfolio of end-to-end services and support that can help increase your network's business value and return on investment. This approach can help you successfully deploy and operate Cisco technologies and optimize their performance throughout the lifecycle of your network.

For More Information

To learn more about this product, contact your local account representative.

To subscribe to receive end-of-life and end-of-sale information, go to http://www.cisco.com/cisco/support/notifications.html.

Managing your network with ROSA service and element management can help you decrease your mean-time-to-repair, increase uptime, and get management that evolves as you provision your networks. http://www.cisco.com/go/rosa.

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