# Cisco D9854 Advanced Program Receiver

## Product Overview

The Cisco® D9854 Advanced Program Receiver (Figure 1) is designed for satellite content distribution applications requiring Digital Video Broadcasting - Satellite (DVB-S) and Digital Video Broadcasting - Satellite - Second Generation (DVB-S2) 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. MPEG-2 or MPEG-4 AVCSD programs can also be decoded for analog and SDI output. A high-quality SDI or HD-SDI output version of the Cisco D9854 is available for re-encoding applications.

**Figure 1.** Cisco D9854 Advanced Program Receiver


## Digital Program Distribution

The Asynchronous Serial Interface (ASI) transport output or the optional MPEGoIP output provides a number of output modes and can carry a decrypted program 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 tuning. 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 alternate programming in the digital tier.

## Digital Advertisement Insertion

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

## Main Features

- Four L-band inputs
- DVB-S quaternary phase shift keying (QPSK) demodulation
- DVB-S2 QPSK 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
- 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 SDMPEG-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
- Closed captioning support for EIA-608 and EIA-708
- MPEG and Dolby Digital 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.
- Utility data up to 38.4 kbps using RS-232
- Uplink addressable decoder output control, including vertical blanking interval (VBI) data, audio routing, DPI, and ASI output)
- Fingerprint trigger
- 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
- CAM Interface software
- Dual-tone multifrequent (DTMF) cue tone and cue trigger outputs for advertisement insertion
- Digital program mapping providing uplink control for service replacements in blackout areas

## Optional Features

- MPEGoIP output only available on the digital transport model
- User-switchable redundant ASI, SDI, or HD-SDI outputs
- SDI or HD-SDI video output with embedded audio
- AES-3id digital audio output

## Specifications

Table 1 provides product specifications for the Cisco D9854 Advanced Program Receiver.

**Table 1.** Product Specifications

| Feature | Description |
|---|---|
| **System** | |
| **Standards** | MPEG-2 and DVB compatible<br>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<br>◦ 1.0 to 45 MSymbols/s<br>• DVB-S2:<br>◦ 10.0 to 30 MSymbols/s<br>◦ 1.0 to 10 MSymbols/s (contact Cisco) |
| **Carrier capture range** | ≥ ±3.0 MHz (1-10 Msymbols)<br>≥ ±5.0 MHz (10-30 Msymbols) |
| **Satellites** | C-band and Ku-band |
| **Input impedance** | 75 Ω |
| **Analog HD Video Output** | |
| **Number of channels** | 1 |
| **Video decompression type** | MPEG-24:2:0and MPEG-4 AVC 4:2:0 |
| **Video standard** | 1080i at 29.97 frames per second (fps), 1080i at25 fps, 720p at59.94 fps, and 720pat 50 fps |
| **Horizontal video resolutions** | 1080i: 1920, 1440, and 1280<br>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 G -4 AVC 4:2:0 |
| **Video standard** | NTSC and PAL B/G/I/D/M/N |
| **Maximum video resolution** | 720x480 and 576 digital audio and video output (future) |
| **Analog Audio Output** | |
| **Number of channels** | 2 stereo pairs or4 mono channels and 5.1 channel down-mix |
| **Audio decompression** | MPEG or Dolby Digital (AC-3)<br>HE-AAC single stereo pair or Dolby Digital Plus single stereo pair available in anticipated software release |
| **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) |
| **Digital Outputs (Optional)** | |
| **Digital HD Video Output** | |
| **Number of channels** | 1 |
| **User selectable output ports** | 2 |
| **Output type** | BNC |
| **Output format** | HD-SDI, SMPTE-292M<br>SDI, SMPTE-259M |
| **Embedded audio** | 2 audio programs, PCM or pass-through<br>2 digital audio outputs (1 stereo channel each)<br>BNC, AES-3id, SMPTE 276M |
| **Aspect Ratio** | |
| **Display aspect ratios** | 4:3, 16:9 |
| **Aspect ratio conversions for down-conversion** | **4:3:** 16:9 letterbox, 14:9 letterbox, center cutout<br>**16:9:** Center Cutout |
| **Aspect ratio conversions for SD programs** | **4:3:** 16:9 letterbox, 14:9 letterbox, center cutout, none<br>**16:9:** Scale to 16:9 |

| Feature | Description |
|---|---|
| **VBI** | |
| **NTSC** | • Lines 10 to 22, fields 1 and 2<br>• Line 21 closed captions<br>• NABTS<br>• AMOL I and II (Neilsen)<br>• VITC<br>• WSS |
| **PAL** | • Lines 7 to 22, fields 1 and 2<br>• WST<br>• WSS<br>• VPS<br>• VITC |
| **Data Outputs** | |
| **RS-232 asynchronous data** | |
| **Rates** | 300, 1200, 2400, 4800, 9600, 19,200, 38,400 b/s |
| **Ethernet output for IP data** | |
| **Connector** | RJ-45, 10/100BaseT |
| **Rates** | Up to 10 Mbps |
| **Conditional Access** | |
| **Cisco PowerVu conditional access** | DES or DVB |
| **DVB descrambling** | BISS mode1/E |
| **DVB-CI** | |
| **Interface** | 2 CI slots - EN 50221 |
| **CA method** | Multicrypt, Simulcrypt |
| **Conditional Access System (CAS)** | Irdeto, Viaccess, Nagravision, Conax<br>MediaGuard, Cryptoworks available in an anticipated future software release |
| **Other Outputs** | |
| **MPEG-2 transport input** | EN50083-9, DVB-ASI coaxial, 188/204 byte packets |
| **MPEGoIP Output (Optional)** | |
| **Physical** | RJ-45 |
| **Ethernet** | 10BASE-T Ethernet, 100BASE-T Ethernet, and 1000BASE-T Ethernet |
| **Output modes** | UDP Raw, RTP |
| **Ethernet output for control and monitoring** | RJ-45, 10BASE-T Ethernet, 100BASE-T Ethernet, and 1000BASE-T Ethernet |
| **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 |
| **Cue Tone Output** | |
| **Balanced audio output** | -3.0 dBu ±3 dB, 600 ohms |
| **Output impedance** | < 50ohms |
| **Cue Trigger Outputs** | |
| **Number of outputs** | 8 |
| **Type** | Open collector |
| **Environmental Specifications** | |
| **Operating temperature** | 0-50℃ (32-122℉) |
| **Storage** | -20-70℃ (-4-158℉) |

| Feature | Description |
|---|---|
| **Chassis Mechanical Specifications** | |
| **Height** | 1.72 in. (4.37 cm) 1RU high, 19 in. EIA rack mountable |
| **Width** | 17.35 in. (44.07 cm) |
| **Depth** | 13.78 in. (35.0 cm) |
| **Weight** | 10 lbs (4.5 kg) approx. |
| **Power** | |
| **Voltage range** | 100 V to 240 VAC |
| **Line frequency** | 50/60 Hz |
| **Power consumption** | 37 W maximum |
| **LNB power on satellite input** | +13 V or +18 V at 400 mA maximum |

Figure 2 shows the rear panel of the Cisco D9854 Advanced Program Receiver base model.

**Figure 2.** Cisco D9854 Advanced Program Receiver (Base Model)

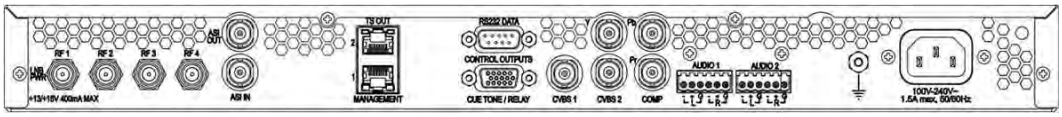
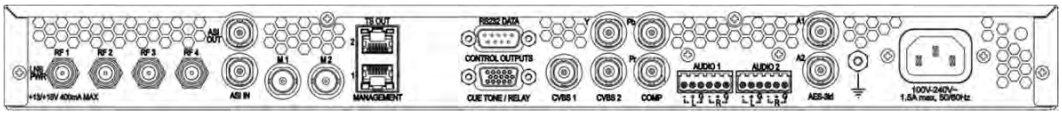


Figure 3 shows the Cisco D9854 Advanced Program Receiver SDI model, with SD, HD-SDI, and AES outputs.

**Figure 3.** Cisco D9854 Advanced Program Receiver (SDI Model, with SD, HD-SDI, and AES Outputs)



## 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 D9854 Receiver Features | Part Number |
|---|---|
| **1RU with GEN-ISE, ASI & MPEGoIP out** | D9854-GEN-ASI-1RU |
| **1RU with NAP-ISE, ASI & MPEGoIP out** | D9854-NAP-ASI-1RU |
| **1RU with GEN-ISE, ASI, SDI & MPEGoIP out** | D9854-GEN-SDI-1RU |
| **1RU with NAP-ISE, ASI, SDI & MPEGoIP out** | D9854-NAP-SDI-1RU |
| **1RU with SFN-ISE, ASI, SDI & MPEGoIP out** | D9854-SFN-ASI-1RU |
| **1RU with GEN-ISE, DVB, ASI & MPEGoIP out** | D9854-GEN-ASI-DVB |
| **1RU with GEN-ISE, DVB, ASI, SDI & MPEGoIP out** | D9854-GEN-SDI-DVB |
| **D9854 Add-On License Features** | **Part Number** |
| **HD Video Decoding License** | L-D9854-HDDEC |
| **MPEG4 Video Decoding License** | L-D9854-MP4DEC |
| **DVB S2 Demodulation License** | L-D9854-DVBS2 |
| **MPEGoIP Out put License** | L-D9854-IPOUT |

| Cisco D9854 User Default Options | Part Number |
|---|---|
| **PowerVu user default settings** | D9854-UD-POWER-VU |
| **DVB-CI user default settings** | D9854-UD-DVB-CI |

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

**Table 3.** Ordering Information: Country-Specific Power Cords

| Power Cord Description | 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 |

## For More Information

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

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

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