

# Cisco D9854-I Advanced Program Receiver

## Product Overview

If you're looking for a multifaceted receiver, look no further than the Cisco® D9854-I Advanced Program Receiver (Figure 1). Designed for satellite and terrestrial content distribution applications requiring Digital Video Broadcasting - Satellite (DVB-S), Digital Video Broadcasting - Satellite - Second Generation (DVB-S2), and IP reception capabilities, it has 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 Serial Digital Interface (SDI) output. The Cisco D9854-I comes with RF, ASI, and MPEG over IP (MPEGoIP) input combined with a high-quality SDI or HD-SDI output and optional MPEGoIP output.

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



## Digital Program Distribution

The Cisco D9854-I Advanced Program Receiver offers Asynchronous Serial Interface (ASI) transport output and MPEGoIP output (a licensed option). They provide 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
- 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 16 SPTS)

- Supports Forward Error Correction (FEC) based on SMPTE 2022 for MPEGoIP input and Output
- 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 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
- User-configurable redundant ASI, SDI, or HD-SDI outputs
- SDI or HD-SDI video output with embedded audio
- Closed captioning support for EIA-608 and EIA-708
- MPEG and Dolby Digital audio decoding
- DVB or Imtext 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
- Cisco Live Event Controller support
- On Screen Display support on baseband output.
- Satellite Disaster Recovery support with Cisco PowerVu Network Center uplink control (Release 12.5 or later)

## Specifications

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

**Table 1.** Product Specifications

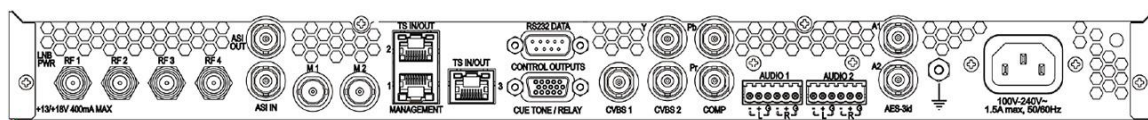
Feature	Description
<b>System</b>	
<b>Standards</b>	MPEG-2 and DVB compatible EN 300 421, EN 300 468
<b>Demodulation</b>	DVB-S QPSK, DVB-S2 QPSK and 8PSK
<b>Tuner RF inputs</b>	
<b>Number of RF inputs</b>	4 (1 active at a time)
<b>Input level</b>	-25 to -65 dBm per carrier
<b>Frequency range</b>	950 to 2150 MHz
<b>Symbol rate range</b>	<ul style="list-style-type: none"><li>• DVB-S:<ul style="list-style-type: none"><li>◦ 1.0 to 45 MSymbols/s</li></ul></li><li>• DVB-S2:<ul style="list-style-type: none"><li>◦ 10.0 to 30 MSymbols/s</li><li>◦ 1.0 to 10 MSymbols/s (contact Cisco)</li></ul></li></ul>
<b>Carrier capture range</b>	≥ ±3.0 MHz (1-10 Msymbols) ≥ ±5.0 MHz (10-30 Msymbols)
<b>Satellites</b>	C-band and Ku-band
<b>Input impedance</b>	75 Ohm
<b>ASI input</b>	
<b>MPEG-2 transport input</b>	EN50083-9, DVB-ASI coaxial, 188/204 byte packets
<b>MPEGoIP Input</b>	
<b>Physical</b>	RJ-45
<b>Ethernet</b>	100BASE-T Ethernet, and 1000BASE-T Ethernet
<b>FEC</b>	FEC based on SMPTE 2022 for MPEGoIP input
<b>Input modes</b>	UDP Raw, RTP, FEC
<b>Rates</b>	Up to 180 Mbps
<b>Analog Outputs</b>	
<b>Analog HD Video Output</b>	
<b>Number of channels</b>	1
<b>Video decompression type</b>	MPEG-2 4:2:0 and MPEG-4 AVC 4:2:0 (Optional)
<b>Video standard</b>	1080i at 29.97 frames per second (fps), 1080i at 25 fps, 720p at 59.94 fps, and 720p at 50 fps
<b>Horizontal video resolutions</b>	1080i: 1920, 1440, and 1280 720p: 1280, 960, and 640
<b>Analog SD Video Output</b>	
<b>Number of channels</b>	1 (2 identical outputs)
<b>Video decompression type</b>	MPEG-2 4:2:0 and MPEG-4 AVC 4:2:0
<b>Video standard</b>	NTSC and PAL B/G/I/D/M/N
<b>Maximum video resolution</b>	720x480 and 576 video output

Feature	Description
<b>Analog Audio Output</b>	
<b>Number of channels</b>	2 stereo pairs or 4 mono channels and 5.1 channel down-mix
<b>Audio decompression</b>	MPEG or Dolby Digital (AC-3) HE-AAC single stereo pair or Dolby Digital Plus single stereo pair
<b>Output level</b>	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 $\pm 6.0$ dB (ref. 100 kilohms) and is factory calibrated to +18 dBu (at full scale).
<b>Frequency response</b>	$\pm 0.5$ dB, 20 Hz to 20 kHz (ref. 100 kilohms)
<b>Total harmonic distortion</b>	< 0.3% at 1 kHz (ref. 100 kilohms)
<b>Dynamic range</b>	85 dB (CCIR average response meter [ARM] weighting)
<b>Crosstalk</b>	80 dB at 1 kHz (typical)
<b>Digital Outputs (Optional)</b>	
<b>Digital HD Video Output</b>	
<b>Number of channels</b>	1
<b>User selectable output ports</b>	2
<b>Output type</b>	BNC
<b>Output format</b>	HD-SDI, SMPTE-292M SDI, SMPTE-259M
<b>Embedded audio</b>	2 audio programs, PCM or pass-through 2 digital audio outputs (1 stereo channel each) BNC, AES-3id, SMPTE 276M
<b>Aspect Ratio</b>	
<b>Display aspect ratios</b>	4:3, 16:9
<b>Aspect ratio conversions for down-conversion</b>	<b>4:3:</b> 16:9 letterbox, 14:9 letterbox, center cutout <b>16:9:</b> Center Cutout
<b>Aspect ratio conversions for SD programs</b>	<b>4:3:</b> 16:9 letterbox, 14:9 letterbox, center cutout, none <b>16:9:</b> Scale to 16:9
<b>VBI</b>	
<b>NTSC</b>	<ul style="list-style-type: none"> <li>• Lines 10 to 22, fields 1 and 2</li> <li>• Line 21 closed captions</li> <li>• NABTS</li> <li>• AMOL I and II (Neilsen)</li> <li>• VITC</li> <li>• WSS</li> </ul>
<b>PAL</b>	<ul style="list-style-type: none"> <li>• Lines 7 to 22, fields 1 and 2</li> <li>• WST</li> <li>• WSS</li> <li>• VPS</li> <li>• VITC</li> </ul>
<b>Data Outputs</b>	
<b>RS-232 asynchronous data</b>	
<b>Rates</b>	300, 1200, 2400, 4800, 9600, 19,200, 38,400 b/s
<b>Ethernet output for MPE data</b>	
<b>Connector</b>	RJ-45, 100/1000BaseT
<b>Rates</b>	Up to 10 Mbps

Feature	Description
<b>Conditional Access</b>	
Cisco PowerVu conditional access	DES or DVB
DVB descrambling	BISS mode1/E
<b>DVB-CI</b>	
Interface	2 CI slots - EN 50221
CA method	Multicrypt, Simulcrypt
Conditional Access System (CAS)	Irdeto, Viaccess, Nagravision, Conax MediaGuard, Roscrypt, Cisco VideoGuard™ and Cryptoworks
<b>Other Outputs</b>	
<b>ASI Output</b>	
MPEG-2 transport output	EN50083-9, DVB-ASI coaxial, 188/204 byte packets
<b>MPEGoIP Output (Optional)</b>	
Physical	RJ-45
Ethernet	100BASE-T Ethernet, and 1000BASE-T Ethernet
Output modes	UDP Raw, RTP, FEC
FEC	FEC based on SMPTE 2022
Rates	Up to 200 Mbps
<b>Relay output</b>	
Programmable relay output	Alarm or configurable to one of the 8 open collector outputs
<b>Cue Tone Output</b>	
Balanced audio output	-3.0 dBu ±3 dB, 600 ohms
Output impedance	< 50ohms
<b>Cue Trigger Outputs</b>	
Number of outputs	8
Type	Open collector
<b>Environmental Specifications</b>	
Operating temperature	0-50°C (32-122°F)
Storage	-20-70°C (-4-158°F)
<b>Chassis Mechanical Specifications</b>	
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.
<b>Power</b>	
Voltage range	100V to 240 VAC
Line frequency	50/60 Hz
Power consumption	50W typical (without LNB)
LNB power on satellite input	+13V or +18V at 400 mA maximum

Figure 2 shows the Cisco D9854-I Advanced Program Receiver.

**Figure 2.** Cisco D9854-I Advanced Program Receiver



## 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-I Receiver Features	Part Number
1RU with GEN-ISE, ASI, MPEoIP Input & SDI out	D9854-IPIN-GEN-1RU
1RU with NAP-ISE, ASI, MPEGoIP Input & SDI out	D9854-IPIN-NAP-1RU
D9854-I Add-On License Features	Part Number
HD Video Decoding License	LIC-D9854-HD-DEC
MPEG4 Video Decoding License	LIC-D9854-MPEG4
DVB S2 Demodulation License	LIC-D9854-DVB-S2
MPEGoIP Out put License	LIC-D9854-IP-OUT

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 the Cisco D9854-I Advanced Program Receiver, contact your local account representative or go to [Digital Receivers/Decoders](#).

Read more about the [Cisco End-of-Life Policy](#) and [Subscribe](#) to receive end-of-life and end-of-sale information.

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