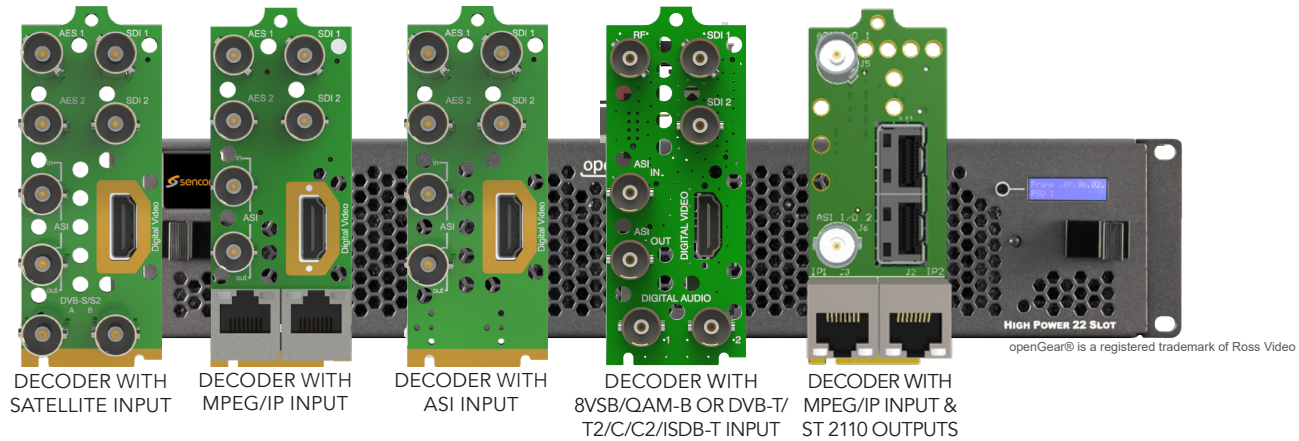


# UHD Professional Receiver Decoder Card

AG 6000



## OVERVIEW

The AG 6000 is a UHD receiver decoder card for the openGear® form factor or it can work in Sencore's CRD 4900 chassis. It is built with the latest generation ASIC to deliver a dense, cost-effective, multiformat decoding solution. The AG 6000 is perfect for applications such as monitoring, digital-turnaround, digital signage, hospitality and enterprise video delivery.

The AG 6000 will decode HEVC/H.264/MPEG-2 and output UHD/HD/SD video with 4 audio services (8 audio channels) with all ancillary data required for professional video delivery networks. Input and output options include ASI, MPEG/IP, DVB-S/S2/S2X, QAM/8VSB, DVB-T/T2, C/C2 and ISDB-T. Licenses and hardware options for descrambling include BISS and dual DVB-CI CAM slots.

The AG 6000 maintains our long tradition of ease of use, with a straight-forward user interface and web APIs and backed by Sencore's best-in-class staff of ProCare support engineers.

## APPLICATIONS

- Primary and Secondary distribution decode
  - UHD and HEVC natively supported, future proof for any application
  - Downscale incoming signals for re-encode
- Monitoring of UHD and 1080P60 signals
- UHD signage, hospitality and enterprise video

## KEY FEATURES

- Multiformat support to decode any stream
  - HEVC/H.264/MPEG-2 up to 4:2:0 10-bit
  - Up to 8 channels of audio processing for MPEG-1/2, AAC and Dolby AC-3/E-AC-3
- Input and output options include ASI, MPEG/IP, DVB-S/S2/S2X, QAM/8VSB, DVB-T/T2, C/C2 and ISDB-T
- ST 2110, SDI and HDMI output options
  - Dual SFP+ outputs for HD/SD ST 2110 output
  - 4x 3G-SDI for UHD output in four quadrant or 2SI
  - 2x 3G-SDI for dual 1080p60 output
  - HDMI 2.0a connector for UHD and HD output

# SPECIFICATIONS

## UHD Professional Receiver Decoder Card - AG 6000

### VIDEO DECODER CARD AG 60001, AG 60002 and AG 60003

<b>Base Decoding (UHD/4K, HD, SD 4:2:0)</b>	
Video Profile/Levels:	MPEG-2 MP@HL H.264 up to HP@L4.2 HEVC M10P, MT @ L5.1
Video ES Bitrates:	Up to 40 Mbps for UHD HEVC Up to 100 Mbps+ for H.264 & MPEG2
Frame Synchronization Modes:	PCR-Recovered Clock
Output Formats:	1920x1080p @ 50, 59.94, 60 1920x1080i @ 25, 29.97, 30 1920x1080p @ 23.97, 24, 25, 29.97, 30 1280x720p @ 50, 59.94, 60 720x576i @ 25 720x480i @ 29.97
<b>AG 60001 Output Interfaces:</b>	
SD/HD/3G-SDI:	Mirrored 2x 75Ω BNC
SDI Format Support:	3G-SDI Level A
Digital Video:	1x HDMI-2.0a Connector
<b>AG 60002 Output Interfaces:</b>	
SD/HD/3G-SDI:	4x 75Ω BNC
SDI Format Support:	3G-SDI Level A
<b>AG 60003 Output Interfaces:</b>	
Connectors:	2x 10GB SFP+ (MSA Compliant)
IP Encapsulation:	ST 2110-10 ST 2110-20 ST 2110-30 ST 2110-40 ST 2110-21 Type N (Narrow)
Packet Pacing:	ST 2059-2
PTP Synchronization:	ST 2059-2
Output Redundancy:	ST 2022-7 Hitless Switching

### 4x3G-SDI Output for 4K/UHD Video Output License AG 60730

<i>Requires AG 60002 4x3G-SDI option.</i>	
Output Formats:	4096x2160p up to 60 3840x2160 up to 60
SDI Link Modes:	Four Quadrant, Two Sample Interleave (SMPTE 425-5)

### Base Audio Decoding Features

Number of Audio Services:	2 Standard, Up to 4 Available
Audio Codecs Supported:	Dolby Digital (AC-3) & Plus (EAC-3) AAC-LC, HE-AAC, & HE-AACv2 MPEG1L2 & MPEG2L2
Output Formats:	Digital Pass-through PCM (Downmixed for 5.1 Sources)

### Discrete Channel Audio Output License AG 60851

Adds Output Formats:	PCM (Decoded Discrete channels for 5.1 Sources)
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### 4x Service Audio Decode License AG 60840

Additional Audio Services:	2 Services (Total of 4 Services)
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### Base Audio Output Features

AES Outputs:	2x 75Ω BNC
SDI Embedded Audio Output:	4 Audio Pairs

### Included Transport Stream Input/Output Features

ASI Input/Output:	2x Bi-directional - 75Ω BNC
Supported Bitrate:	250 Kbps to 200 Mbps

### BISS-1 Descrambling License AG 60921

Supported Modes:	Mode 0, Mode 1 with Session Word Mode E with SW and Injected ID
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Multi-BISS Support: Up to 12 Separate Keys

### BISS-2/CA Descrambling License AG 60922

Supported Modes:	Mode 0, Mode 1 with Session Word Mode E with SW and Injected ID Mode CA with Injected Private Key Mode CA with Buried Private Key
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Multi-BISS Support: Up to 12 Separate Keys

Multi-Section EMM Support: Yes

### Ancillary Data Support

SDI ANC Data Types:	Closed Captions (CEA-708) OP-47 (SMPTE RDD-08) SCTE 127 (SMPTE 2031) EN301775 (SMPTE 2031) SCTE 104
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### PID/Service Filtering License AG 60928

Filtering:	5 Independent TS (MPTS or SPTS) outputs via IP or ASI
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Table Regeneration (MPEG Mode): PAT regeneration

Table Pass-through (MPEG Mode): PMT, CAT, NIT pass-through Table

Regeneration (DVB Mode): PAT, SDT

Table Pass-through (DVB Mode): PMT, CAT, NIT, EIT, RST, TDT, TOT

### SCTE 35 to SCTE 104/Relay Output License AG 60992

### IP INPUT/OUTPUT MODULE AG 127A

Physical Interface:	2x RJ45, 10/100/1000 Auto-Negotiate
Input Format:	UDP or RTP

Constant Bitrate or Null-Stripped  
RTP Header Extensions Supported  
SMPTE 2022/CoP3 FEC Supported  
UDP

Output Format:	Up to 2 PIDs
MPE De-encapsulation:	Up to 60Mbps per MPE PID

Addressing:	Unicast or Multicast
IGMP compatibility:	Version 1, 2 & 3
Per TS Bitrate:	250 Kbps to 200 Mbps

### MPEG/IP FEC Output License AG 60925

Additional Output Formats:	RTP with SMPTE 2022/CoP3 FEC
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### 8VSB/QAM-B INPUT MODULE AG 101A

Physical Interface:	1x 75Ω BNC-Type
Frequency Range:	50-1000 MHz
Sensitivity:	-34 to +40 dBmV (A74 Compliant)
8VSB Standard:	ATSC A/53E
8VSB Channel Plans:	Broadcast
QAM Standard:	ITU Annex B/SCTE DVS-031
QAM Channel Plans:	FCC, IRC, HRC
QAM Constellations:	QAM64, QAM256

# SPECIFICATIONS

## UHD Professional Receiver Decoder Card - AG 6000

### DVB-T/T2/C/C2/ISDB-T INPUT MODULE

AG 115A

Physical Interface:	1x 75Ω BNC-Type
Frequency Range:	42-1002 MHz
Bandwidth:	1.7MHz, 5 MHz, 6MHz, 7MHz, 8MHz
Constellations:	
DVB-T:	QPSK, QAM16, QAM64 (All FEC Rates)
DVB-T2:	QPSK, QAM16, QAM64, QAM256 (All FEC Rates)
DVB-C:	QAM16, QAM32, QAM64, QAM128, QAM256 (All FEC Rates)
DVB-C2:	QAM16, QAM64, QAM256, QAM1024, QAM4096 (All FEC Rates)
ISDB-T:	QPSK, QAM16, QAM64 (All FEC Rates)

### DVB-S/S2/S2X INPUT MODULE

AG 116B

Physical Interface:	2x 75Ω BNC
Frequency Range:	950-2150 MHz
Symbol Rates:	1-72 Msps with 8PSK/QPSK 1-60 Msps with 16APSK and higher
DVB-S Modulation Modes:	QPSK (All FEC Rates)
DVB-S2/S2X Modulation Modes:	QPSK/8PSK (All FEC Rates) 16/32/64APSK (with License)
LNB Power:	Off/13/14/18/19VDC @ 450mA * maximum of 7 AG cards with LNB power enabled per chassis
Control Tone Support:	22 kHz On/Off
Supported Roll-off Factors:	0.35, 0.25, 0.20, 0.15, 0.10, 0.05

### DVB-S2/S2X Advanced Feature License

AG 58916

Additional Modulation Modes:	16/32/64APSK (All FEC Rates) VCM Demodulation Support Multistream (Single ISI)
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### DVB-S/S2/S2X INPUT MODULE WITH DVB-CI

AG 137B

Physical Interface:	Adds two DVB-CI CAM Slots
Without Multi-Service License:	Descrambles Decoded Service Only
With Multi-Service License:	Number of Services limited by CAM
<b>DVB-CI Multi-Service Descrambling License</b>	<b>AG 60991</b>
With DVB-CI Capable Input:	Enables Multi-service Descrambling

### DVB-T/T2/C/C2/ISDB-T INPUT MODULE WITH DVB-CI

AG 115B

Physical Interface:	Adds one DVB-CI CAM Slot
Without Multi-Service License:	Descrambles Decoded Service Only
With Multi-Service License:	Number of Services limited by CAM
<b>DVB-CI Multi-Service Descrambling License</b>	<b>AG 60991</b>
With DVB-CI Capable Input:	Enables Multi-service Descrambling

### MANAGEMENT

User Interfaces:	Full control via web UI
Automation Interfaces:	SNMP status, control, traps Syslog alarm output HTTP Web services API
Authentication:	Local Login, TACACS+

### ENVIRONMENTAL CONDITIONS

Power:	100-240 VAC 50/60 Hz Dual, Redundant Supply Available
Operating Temp:	0° to 50°C