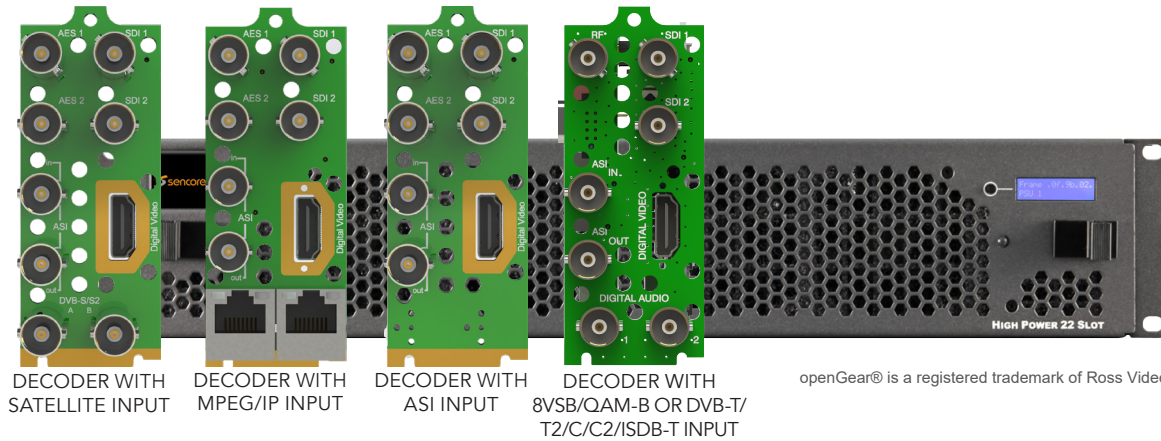


# UHD Professional Receiver Decoder Card

AG 6000



openGear® is a registered trademark of Ross Video

## OVERVIEW

The AG 6000 is a new UHD receiver decoder card for the openGear® form factor. Built with the latest generation ASIC to deliver a dense, cost-effective multiformat decoding solution. Perfect for applications such as monitoring, digital-turnaround, digital signage, hospitality and enterprise video delivery.

The AG 6000 will decode HEVC/H.264/MPEG2 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/VSB, DVB-T/T2, C/C2 and ISDB-T. Licenses and hardware options for descrambling include with 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. openGear® is a registered trademark of Ross Video

## 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/MPEG2 up to 4:2:0 10-bit
  - Up to 8 channels of audio processing for MPEG1/2, AAC and Dolby AC3/AC3+
- Input and output options include ASI, MPEG/IP, DVB/S/S2/S2X, QAM/VSB, DVB-T/T2, C/C2 and ISDB-T
- SDI, HDMI and composite outputs
  - 5x 3G-SDI ports
    - 4x3G-SDI for UHD output in four quadrant or 2SI
    - 2x3G-SDI for dual 1080p60 output
  - HDMI 2.0a connector for UHD and HD output
  - HDMI 2.0a connector for UHD and HD outputs

# SPECIFICATIONS

## UUHD Professional Receiver Decoder Card - AG 6000

### VIDEO DECODER CARD

AG 60001 & AG 60002

#### Base Decoding (UHD/4K, HD, SD 4:2:0)

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

#### AG 60001 Output Interfaces:

SD/HD/3G-SDI: Mirrored 2x 75Ω BNC  
SDI Format Support: 3G-SDI Level A  
Digital Video: 1x HDMI-2.0a Connector

#### AG 60002 Output Interfaces:

SD/HD/3G-SDI: 4x 75Ω BNC  
SDI Format Support: 3G-SDI Level A

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

Requires AG 60002 4x3G-SDI option.

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)  
Analog (Downmixed for 5.1 Sources)

#### Discrete Channel Audio Output License AG 60851

Adds Output Formats: PCM (Decoded Discrete channels  
for 5.1 Sources)  
Analog (Decoded Discrete channels  
for 5.1 Sources)

#### 4x Service Audio Decode License AG 60840

Additional Audio Services: 2 Services (Total of 4 Services)

#### 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 Descrambling License AG 60921

Supported Modes: Mode 1, Mode E, Injected ID  
Multi-BISS Support: Up to 12 Separate Keys

#### 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

#### PID/Service Filtering License

AG 60928

Filtering: 10 Independent TS (MPTS or SPTS  
created; output via IP or ASI)

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

#### DVB-S/S2 INPUT MODULE

AG 116A

Physical Interface: 2x 75Ω BNC  
Frequency Range: 950-2150 MHz  
Symbol Rates: 1-45 MSps  
DVB-S Modulation Modes: QPSK (All FEC Rates)  
DVB-S2 Modulation Modes: QPSK/8PSK (All FEC Rates)  
16/32APSK (with License)

LNB Power: Off/13/14/18/19VDC @ 450mA  
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 Advanced Feature License

AG 60916

Additional Modulation Modes: 16ASPK/32APSK (All FEC Rates)  
VCM Demodulation Support  
Multistream (Single ISI)

#### DVB-S/S2 INPUT MODULE WITH DVB-CI

AG 137A

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

#### DVB-CI Multi-Service Descrambling License

AG 60991

With DVB-CI Capable Input: Enables Multi-service Descrambling

#### 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

Output Format: UDP  
MPE De-encapsulation: Up to 2 PIDs  
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

#### 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

#### 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

# SPECIFICATIONS

## UUHD Professional Receiver Decoder Card - AG 6000

### 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
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)
------------------------------	--

### 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

### DVB-CI Multi-Service Descrambling License

AG 60991

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

### DVB-CI Multi-Service Descrambling License

AG 60991

With DVB-CI Capable Input:	Enables Multi-service Descrambling
----------------------------	------------------------------------

## MANAGEMENT

User Interfaces:	Full control via web GUI
Automation Interfaces:	SNMP status, control, traps Syslog alarm output HTTP Web services API

## ENVIRONMENTAL CONDITIONS

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