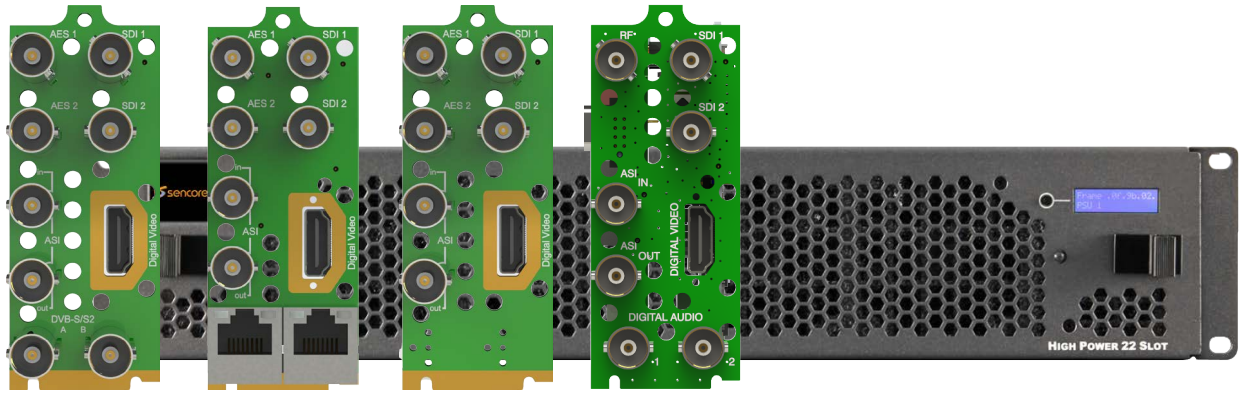
Receiver Decoder Card

AG 4400 openGear® Module



DECODER WITH SATELLITE INPUT | DECODER WITH MPEG/IP INPUT | DECODER WITH ASI INPUT | DECODER WITH 8VSB/QAM-B OR DVB-T/T2/C/C2/ISDB-T INPUT

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OVERVIEW

The new AG 4400 card-based receiver decoder provides an ideal solution for high-quality video decoding where rack space is at a premium. The platform supports up to 10 H.264/MPEG2 decoder cards in a 2RU OG-3 frame.

The product supports decoding MPEG2 or H.264 video, as well as up to four audio PIDs. The audio decoding capability is the perfect solution for video distributors looking to meet upcoming descriptive video requirements, while continuing to support surround, stereo, and SAP services.

The AG 4400 receiver decoder card offers satellite, IP, ASI, and 8VSB/QAM-B and DVB-T/T2/C/C2/ISDB-T inputs for flexible installation into a variety of video delivery systems. Optional integrated DVB-CI descrambling, as well as BISS-1/E capabilities, makes the AG 4400 a powerful solution for receiving feeds from primary distribution.

When combined with versatile IP input/output capabilities, a full complement of ancillary data support, and tested interoperability with all major encode vendors, the AG 4400 is an ideal solution for high-density re-encode or monitoring.

In addition, the decoder benefits from Sencore's tradition of receiver decoder design and is backed by best-in-class ProCare support.

KEY FEATURES

- Intuitive, straightforward web interface
- Extensive automation support via SNMP status, configuration, and traps, HTTP-based APIs, and Syslog
- Shared software and feature-set with Sencore 1RU decoders ensure reliability and interoperability
- Support for All Common Video Formats

  √ MPEG2 or H.264, HD or SD video

  √ Codecs auto-detected and switchable on-the-fly
- Up to 4 services of audio decoding or SDI pass-through with support for all major audio formats
- Dual SDI auto-switching outputs
- Built-in ASI I/O for maximum value and flexibility
- Available IP, 8VSB/QAM-B, DVB-T/T2/C/C2/ISDB-T and satellite inputs
- Full complement of ancillary data output in ANC and VBI
- Closed-caption or auto-scaling subtitle overlays for monitoring or burn-in applications
- Full control, status, and alarm monitoring via SNMP

APPLICATIONS

- **Monitor Multi-channel Distribution Installations**
  Create a real-time monitoring system to feed an SDI matrix or power a multi-viewer with minimal rack-space and power consumption. Time-tested, professional grade decode engine handles any video feed.
- **Decode Multiple Channels for Re-encoding**
  Reduce the footprint of existing decode/re-encode infrastructure without reinventing the entire system. Redundant SDI outputs with a full complement of ancillary data interoperate with any encoder.

SPECIFICATIONS
Receiver Decoder Card AG 4400

AVAILABLE VIDEO DECODER MODULES

AG 44021A	ASI I/O, SDI Outputs, Discrete Audio, Genlock Support
AG 44020A	ASI, SDI Outputs, Discrete Audio

COMMON VIDEO DECODER FEATURES

Base Decoding (SD 4:2:0)

Additional Profile/Levels:	MPEG2 MP@ML H.264 up to MP@L3

HD Decoding License AG 44710

Additional Profile/Levels:	MPEG2 MP@HL H.264 up to HP@L4.2

Additional Base Video Features

Frame Synchronization Modes:	PCR-Recovered Clock Genlock Reference (AG 44021 Only)
Aspect Ratio Conversion	
Manual Selection:	Letterbox, Center-Cut, Anamorphic
Automatic Selection:	Follows AFD Codes
Output Formats:	1920x1080i @ 25, 29.97, 30 1920x1080p @ 23.97, 24, 25, 29.97, 30 1280x720p @ 50, 59.94, 60 720x576i @ 25 720x480i @ 29.97
Output Interfaces:	
SD/HD-SDI:	2x 75Ω BNC
Digital Video:	1x HDMI-type Connector

Video Overlay Support

Closed Caption Overlays:	CEA-608, CEA-708, or SCTE-20
DVB-Subtitle Overlays:	HD/SD with Auto Scaling (EN 300743)

Base Audio Decoding Features

Number of Audio PIDs:	2 Standard, Up to 4 Available
Audio Codecs Supported:	Dolby Digital (AC-3) & Plus (EAC-3) AAC-LC, HE-AAC, & HE-AACv2 MPEG-1L2 & MPEG2L2 Linear PCM & Dolby E (Pass-through)
Output Formats:	Digital Pass-through PCM (Downmixed for 5.1 Sources) Analog (Downmixed for 5.1 Sources)
Audio Delay/Advance:	Per Service, +100/-35 ms

4 Service Audio Decode License AG 44840

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

Discrete Channel Audio Output License AG 44851

For 5.1 Sources:	Output Individual Channel Pairs

Base Audio Output Features

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

Ancillary Data Support

SDI ANC Data Types:	AFD (SMPTE 2016) Closed Captions (CEA-708) OP-47 (SMPTE RDD-08) SMPTE RDD-11 VANC Passthrough (SMPTE 2038) SCTE 127 (SMPTE 2031) EN301775 (SMPTE 2031) Time Code (SMPTE 12M-2)
VBI Waveforms (SDI/Composite):	Line 21 Captions (CEA-608) TVG2X, AMOL-48/96 (SCTE-127) Teletext/WSS/VPS (EN301775) Timecode in VBI (SMPTE 12M-1)[5]

COMMON VIDEO DECODER FEATURES, CONTINUED

SCTE 35 to SCTE 104 Output License AG 44992

Cablelabs ESAM POIS Interface License AG 44993

Included Transport Stream Input/Output Features

ASI Input/Output:	1x In, 1x Out - 75Ω BNC
Supported Bitrate:	250 Kbps to 200 Mbps

BISS Descrambling License AG 44921

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

PID/Service Filtering License AG 44928

Filtering:	10 Independent TS (MPTS or SPTS created; output via IP or ASI
Table Regeneration (DVB Mode):	PAT regeneration
Table Pass-through (DVB Mode):	PMT, CAT, NIT pass-through Table
Regeneration (DVB Mode):	PAT, SDT
Table Pass-through (DVB Mode):	PMT, CAT, NIT, EIT, RST, TDT, TOT

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 44916

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 44991

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

8VSB/QAM-B INPUT MODULE AG 101A

Physical Interface:	1x 75Ω BNC
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
Receiver Decoder Card AG 4400

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 60 Mbps 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 44925

Additional Output Formats:	RTP with SMPTE 2022/CoP3 FEC

DVB-T/T2/C/C2/ISDB-T INPUT MODULE AG 115A

Physical Interface:	1x 75Ω BNC
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
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 44916

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 44991

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 44991

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 Remote in-band control with CMD 4000

ENVIRONMENTAL CONDITIONS

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