toner
cable equipment, inc.
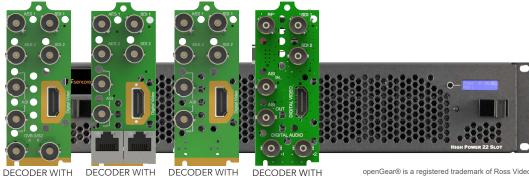www.tonercable.com

sencore.

AG4400

openGear Receiver Decoder Card

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

openGear® is a registered trademark of Ross Video

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.

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

AG4400
openGear Receiver Decoder Card

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

969 Horsham Road • Horsham, Pennsylvania 19044 USA • Phone: 215-675-2053   Fax: 215-675-7543 • info@tonercable.com