Advanced Modular Decoder

MRD 5800

The flagship MRD 5800 Advanced Modular Receiver continues Sencore's long history of leadership in the receiver/decoder space. The product boasts a full complement of cutting- edge features, including 4:2:2 H.264 8bit/10bit decoding, up to 8 individual audio PIDs, 16/32APSK satellite demodulation, and 1080p60 video support with 3G-SDI output. All decoding and output formats are upgradable in the field via software license, so the receiver can grow as needs evolve. This feature set makes the MRD 5800 the ideal choice for contribution reception or demanding distribution applications which require a future-proof set of specifications.

Every 5800 ships with a full complement of basic inputs and outputs built-in, including ASI input and output and dual SD/HD/3G-SDI outputs. The digital video output means that video monitoring is as easy as finding the nearest consumer television or PC monitor, and available factory- configurable MPEG over IP I/O and DVB-S2 modules adapt the product to any use case.

The receiver also maintains Sencore's long tradition of ease of use, with a straight-forward web interface accessible via all major browsers and complete control of the unit via the front panel keypad, and is backed by Sencore's best-in- class staff of ProCare support engineers.

APPLICATIONS

- **Receive and Decode Satellite or IP Contribution Feeds**
  Pull in high-bitrate, high-quality 4:2:2 video feeds with up to 8 associated audio services via DVB-S, S2, TurboPSK or IP and decode to SDI for local processing or turn-around re- encoding. Be ready for upcoming satellite formats like 16/32APSK and multistream transmission.

- **Decode 1080p60 Video for Emerging Applications**
  Receive Full HD video signals and decode to 3G-SDI for monitoring and turn-around of emerging cinematic, sports, or live-action content.

- **Create a Future-Proof Distribution Installation**
  Prepare for the eventual transition of advanced formats into typical distribution, re-processing, and turn-around applications with the industry's most future-proof, powerful decoder platform.

KEY FEATURES

- Latest generation decoding technology enables support for nearly any video feed

  √ H.264 4:2:2 8-bit or 10-bit video

  √ MPEG-2 4:2:2 8-bit video

  √ MPEG-2 or H.264 4:2:0 video

  √ Up to 100 Mbps of video data

  √ All formats auto-detected and switchable on-the-fly

- Up to 8 services of audio decoding with support for all major audio formats

- Dual 3G/HD/SD-SDI auto-switching outputs

- ASI, IP, RF satellite, and 8VSB inputs

- Full complement of ancillary data output in ANC and VBI

- Intuitive, straightforward web interface

- Full control, status, and alarm monitoring via SNMP

SPECIFICATIONS
Advanced Modular Decoder MRD 5800

VIDEO DECODER MRD 58081

Base Decoding (SD 4:2:2/4:2:0)

Video Profile/Levels:	MPEG-2 MP@ML, 422P@ML
	H.264 MP@L3, up to Hi422P@L3.2

4:2:0 HD Decoding License — MRD 58710

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

4:2:2 HD Decoding License — MRD 58720

Additional Profile/Levels:	MPEG-2 422P@HL
	H.264 up to Hi422P@L4.2

Additional Base Video Features

Video ES Bitrates:	CAVLC Entropy Coded - 100Mbps
	CABAC Entropy Coded - 80Mbps
Frame Synchronization Modes:	PCR-Recovered Clock
	Genlock Reference (with License)

Aspect Ratio Conversion
Manual Selection:	Letterbox, Center-Cut, Anamorphic
Automatic Selection:	Follows AFD Codes

Output Formats:	1920x1080p @ 60 (with License)
	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/3G-SDI:	2x 75Ω BNC
SDI Format Support:	Determined by Decode License
Digital Video:	1x HDMI-type Connector
Composite Output:	1x 75 Ω BNC
	NTSC, PAL-B/G/I/D/M/N

Simultaneous SD Video Output Module — MRD 58601
Mirrored SD SDI Outputs:	2x 75Ω BNC
Composite Output:	1x 75Ω BNC
	NTSC, PAL-B/G/I/D/M/N

Genlock License — MRD 58701
Enables genlock input:	1x 75Ω BNC

1080p50/60 Video Output License — MRD 58740
Additional SDI Formats:	3G-SDI Level A
Additional Output Formats:	1920x1080p @ 50, 59.94, 60

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 Services:	4 Standard, Up to 8 Available
Audio Codecs Supported:	Dolby Digital (AC-3) & Plus (EAC-3)
	AAC-LC, HE-AAC, & HE-AACv2
	MPEG-11L2 & MPEG-2L2
	Linear PCM & Dolby E (Pass-through)
Output Formats:	Digital Pass-through
	PCM (Decoded Discrete channels for 5.1 Sources or (Downmixed for 5.1 Sources)
	Analog (Decoded Discrete channels for 5.1 Sources or (Downmixed for 5.1 Sources)
Audio Delay/Advance:	Per Service, +100/-35 ms

VIDEO DECODER, CONTINUED MRD 58081

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)
	SCTE 104(SMPTE 2010 with license)
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]

SCTE 35 to SCTE 104/Relay Output License — MRD 58992

Cablelabs ESAM POIS Interface License — MRD 55993

Included Transport Stream Input/Output Features
ASI Input:	1x 75Ω BNC
ASI Output:	1x 75Ω BNC
Supported Bitrate:	250 Kbps to 200 Mbps

BISS Descrambling License — MRD 58921
Supported Modes:	Mode 1, Mode E, Injected ID
Multi-BISS Support:	Up to 12 Separate Keys with License

DVB-CI Multi-Service/Multi-BISS License — MRD 58991
With BISS License:	Enables Multi-BISS Descrambling
With DVB-CI Module:	Enables Multi-service Descrambling

Audio Delay/Advance:	Per Service, +100/-35 ms

8 Service Audio Decode License — MRD 58880
Audio Decoding:	4 Additional Services (Total of 8)

Base Audio Output Features
AES Outputs:	8x 75Ω BNC
Analog Outputs:	2x 15 pin D-Sub (4 Stereo Services)
	4x XLR Breakout Cable Available
	4x BNC Breakout Cable Available
	Terminal Block Cable Available
SDI Embedded Audio Output:	8 Audio Pairs

DVB-CI DESCRAMBLING MODULE   MRD 58421

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

IP INPUT/OUTPUT MODULE   MRD 58127

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
IP Encapsulation:	1 to 7 TS Packets per IP Packet
Addressing:	Unicast or Multicast
IGMP compatibility:	Version 1, 2 & 3
Per TS Bitrate:	250 Kbps to 200 Mbps

MPEG/IP FEC Output License   MRD 58925

Additional Output Formats:	RTP and Header Extensions
	SMPTE 2022/CoP3 FEC Supported

DVB-S/S2 INPUT MODULE   MRD 58116

Physical Interface:	4x 75Ω F-Type
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   MRD 58916

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

8VSB/QAM-B INPUT MODULE   MRD 58101

Physical Interface:	75Ω F-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

BROADCOM TURBOPSK RECEIVER MODULE   MRD 58111

Physical Interface:	1x 75Ω F-Type
Frequency Range:	950-2150 MHz
Symbol Rates:	1-30 MSps
DVB-S Modulation Modes:	QPSK (All FEC Rates)
TurboPSK Modulation Modes:	QPSK /8PSK (All FEC Rates)

MANAGEMENT

Connector:	RJ-45 10/100 - Auto Negotiating
Protocols:	HTTP and SNMP
User Interfaces:	Full control via web GUI
	Full control via front panel
Automation Interfaces:	Full status and control via SNMP
	Configurable SNMP traps
	Web services API available
	Syslog message logging
Firmware Updates:	Via web GUI

DIMENSIONS/POWER

Height:	1 RU, 1.72" (44 mm)
Width:	1 RU, 17.2" (437 mm)
Depth:	14.6" (370 mm)
Power:	100-240 VAC 50/60 Hz

ENVIRONMENTAL CONDITIONS

Operating Temp:	0° to 50°C
Storage Temp:	-40°C to 65°C
Relative Operating Humidity:	<95% (non-condensing)