

# 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, DVB-S2 8VSB/QAM-B, DVB-T/T2/C/C2/ISDB-T 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.

## KEY FEATURES

- Latest generation decoding technology enables support for nearly any video feed
  - √ H.264 4:2:2 8-bit or 10-bit video
  - √ MPEG2 4:2:2 8-bit video
  - √ MPEG2 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, 8VSB/QAM-B, DVB-T/T2/C/C2/ISDB-T inputs
- Full complement of ancillary data output in ANC and VBI
- Intuitive, straightforward web interface
- Full control, status, and alarm monitoring via SNMP

## 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.

## SPECIFICATIONS

### Advanced Modular Decoder MRD 5800

#### VIDEO DECODER

MRD 58081

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

Video Profile/Levels: MPEG2 MP@ML, 422P@ML  
H.264 MP@L3, up to Hi422P@L3.2

##### 4:2:0 HD Decoding License

MRD 58710

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

##### 4:2:2 HD Decoding License

MRD 58720

Additional Profile/Levels: MPEG2 422P@HL  
H.264 up to Hi422P@L4.2

##### Additional Base Video Features

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

##### Frame Synchronization Modes:

##### 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  
MPEG11L2 & MPEG2L2  
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)<sup>5</sup>

##### 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

##### DVB-CI Multi-Service

MRD 58991

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

##### PID/Service Filtering License

MRD 58928

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

## SPECIFICATIONS CONTINUED

### Advanced Modular Decoder MRD 5800

#### 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  
 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 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: 1-60 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 INPUT 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)

#### DVB-T/T2/C/C2/ISDB-T INPUT MODULE MRD 58115

Physical Interface: 1x 75Ω F-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)

#### 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  
 Via web GUI  
 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  
 36-72 VDC

#### ENVIRONMENTAL CONDITIONS

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