

Atlas MRD3187A Modular Receiver Decoder

Configuration Guide

The Sencore Atlas MRD 3187A Professional Modular Receiver Decoder provides you with full flexibility to change as needed. No longer is there a need to change the entire instrument, now you can keep the same instrument, just change its capabilities to match your requirements. Here's how:

The MRD3187A is a One Rack Unit 1RU modular MPEG receiver decoder. Its functionality can be changed or configured with modular cards, which slide in from the rear of the unit. There are two rows of slots for the modular cards. There are two different main “configurations” of the MRD3187A; Configuration 1, has 8 slots for a single receiver decoder and is referred to as a **“single 8-slot receiver decoder”**.

The second, Configuration 2, makes it possible for the MRD3187A to have two modular receiver decoders in a 1RU chassis. This provides you with 4 slots per receiver decoder, or a **“dual 4 slot receiver decoder”**.

Now, let’s look at the optional cards, their function, and where they can be used in the Atlas MRD3187A.



First consideration when configuring the MRD3187A will be the receiver side of the unit, or what type of signal you want the unit to receive. There are several options available depending on your application. These are the input cards that are currently available for the MRD3187A.

RF Input (8-VSB/QAM)- **Option 8701** - (Can be installed in any slot except 1-1 and 2-1).

General Function: This card allows you to receive and decode any 8 VSB off-air signal (Channels 2-69). It will also receive and decode any QAM (annex B) 64 or 256 signal. The typical application would be for legacy broadcast or cable head end applications.

RF Input - Frequency Range:	50M-850MHz VHF/UHF (Ch2 - Ch69) CATV (Ch2 - Ch134)
CATV Offsets:	FCC, IRC, HRC
Sensitivity:	-15dBmV
Dynamic range:	>35dB
Modulation:	8VSB, QAM-B
Connector:	F-81 Type, panel mount, female
Impedance:	75 ohms
SNR:	Accuracy: +/- 1dB Range: 0 - 40dB
Input level flag:	Range: -15dBmV to +20dBmV
Standard:	ITU-T, Annex B (SCTE DVS-031)
QAM Mode:	64 and 256

Serial TS Input and Output (SMPTE 310M/DVB-ASI) - **Option 8702-** (Can be installed in any slot except 1-1 and 2-1)

General Function: This card is designed for TS input with TS output capabilities. It can also be used to receive HD/SDI content stream through either ASI or 310M or TS decoding to base-band video for monitoring purposes. It will also provide a TS output to RF input, that can be used to feed QAM (ASI) modulator or broadcast exciter (310M).

Configuration: ASI or 310M, selectable (Not simultaneously)
Connector: BNC (2), female
Impedance: 75ohms

ASI Serial TS Input/Output

of ASI Inputs: 1
of ASI Outputs: 1 (non loop-through)
Standard: EN50083-9 (V2:3/98) DVB ASI
Data Bit Rate: 270Mbps
Max TS Rate Supported: 60Mbps

310M Serial TS Input/Output

of 310M Inputs: 1
of 310M Outputs: 1 (non loop-through)
Standard: SMPTE 310M
Data Bit Rate: 19.39Mbps, synchronous

ASI+ (120 Meg MPTS Input with loop-through) - **Option 8703 (Input Only)** - (Can be installed any slot except 1-1 and 2-1)

General Function: This card provides an ASI Input for High Byte rate on multiple program streams. It will receive 160 Mbytes- large content streams. Ideal for monitoring High Byte rate streams with large (5-30 program) content.

Not intended to be used for ASI TS output from other signal sources.

ASI Serial TS Input/Output -

of ASI Inputs: 1
of ASI Outputs: 1 (loop-through)
Standard: EN50083-9 (V2:3/98) DVB ASI
Data Bit Rate: 270Mbps
Max TS Rate Supported: 160Mbps for MPTS
Connector: BNC (2), female
Impedance: 75ohms

Satellite Input Card (QPSK) **Option 8709** - (Installs in any slot except 1-1 and 2-1).
(Philips SU1278 NIM)

General Function: Allows you to receive any L-Band satellite (KU or C band) and all non-encrypted DVB transmissions. Will handle symbol rates up to 45 MSPS. Will not receive DSS, or advanced modulation mode signals. Tunes in 1 Mhz increments

General-
DVB-S Compliant
Modulation: QPSK
Input Impedance: 75 Ohms
Connector: F-81 Type, panel mount, female
Tuning Range: 950MHz-2150MHz
Symbol rate: 1-45 M Symbols/sec
Input Level (Sensitivity): -70dBm to -25dBm

Satellite Dual Input Card (QPSK) Option 8709A - (Installs in any slot except 1-1 and 2-1).

General Function: Allows you to receive and L-Band satellite (KU or C band) and all non-encrypted DVB transmissions. Will handle symbol rates up to 45 MSPS. Will not receive DSS, or advanced modulation mode signals. Is capable of tuning in 1 Mhz increments. The card is designed for two independent sources, which can not be used simultaneously, but can be easily switched if one source is lost.

General-

DVB-S Compliant	
Modulation:	QPSK
Input Impedance:	75 Ohms
Connector:	2-F-81 Type, panel mount, female, Source A, or Source B
Tuning Range:	950MHz-2150MHz
Symbol rate:	1-45 M Symbols/sec
Input Level (Sensitivity):	-70dBm to -25dBm



The MRD 3187A supports a wide range of applications including: Terrestrial 8 VSB, IP, and Satellite transmission.

Now, that you have the type of Input card selected, it's time to move on to which type(s) of output you will need the Atlas MRD3187A to provide for your system. There are a variety of outputs available, and if your needs, or technology changes, you can easily update the unit by simply changing cards. Here's what are presently available.

Video Output (2 SDI, 1 NTSC Composite) - **Option 8704A** - (Installs in slot 1-1, or 2-1 when optional decoder cards are used).

General Function: This card is designed to provide you with a Standard Definition (decoded) video output in both Composite and Serial Digital Video (259M) formats. The two isolated outputs are mirrored. The typical use would be for output to a legacy analog transmitter or legacy analog modulator. The output can drive a SD encoder, plus provide you with a NTSC or SDI monitor for confidence monitoring during format conversion applications.

SDI (Serial Digital Interface, Standard Definition) -
Standard: ITU-BT.601/SMPTE 259M
Data Bit Rate: 270Mbps
of Serial Video Outputs: 2 (Isolated)
Frame rates: 30, 29.97, 25(interlaced)
Aspect Ratio: 16x9, 4x3
Display Modes (selectable): Letterbox, Cropped, Anamorphic
Embedded audio format: SMPTE272M
of embedded audio chan pairs: 4 (2 complete audio groups)
Audio types supported: AC3, MPEG2 layer 1 and 2, or PCM
Embedded audio control: Selectable - "type"/disable
(each pair independently controlled)
Audio type standard: Compressed (IEC 60958)
Uncompressed (IEC 61937)
Closed Captions: Embedded - EIA-708B
Line 21 - Enable/Disable (selectable)
SDI and Composite controlled simultaneously.
Connector: BNC (x2), female
Impedance: 75ohms
Composite Video Out -
of Outputs: 1 (NTSC/PAL)
Connector: BNC, female
Return Loss: >25dB
Frequency Response: DC to 6.0MHz
Amplitude: 140 IRE (1.0Vpp), +/-2 IRE
NTSC -
Standard: ANSI/SMPTE 170M-1994 CCIR656
Format, Frame rate: 525lines, 29.97Hz (480I)
Setup (pedestal): On/Off, selectable
Closed Caption: Enable/Disable, selectable
CC Standard: EIA-608B
Genlock
SD-SDI Line and Pixel Adjustment
Composite Line, Pixel, Color Phase Adjustment



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Video Output (2 HD-SDI, 1 Component [Y,Pb,Pr/RGBHV])) - **Option 8705** - (Installs in slot 1-1, or 2-1 when optional decoder card are used).

General Function: This card is designed to provide baseband HD coded video in either RGB/Component or baseband serial HD video format that can be used to drive a HD encoder. It can also derive a HD baseband video for HD TS to source any HD switching equipment for local insertion needs. Supports Genlock when used with an 8731 Decoder.

Output connectors: 2 - HD-SDI, 1 - Analog Video
Output formats supported: 1920 x 1080 Interlaced, 1280 x 720 Progressive, 720 x 480 Progressive, 720 x 480 Interlaced, Native (selectable)
Frame rates: 60/30, 59.94/29.97, 25Hz (selectable) (1080I, 720P, 480P) 29.97 (480I - fixed) (progressive/interlaced)
Aspect Ratio: 16x9 (fixed: 1080I, 720P), 16x9, 4x3 (selectable: 480P)
Display Modes (selectable): HD: Letterbox, Cropped, Full, SD: Letterbox, Cropped, HD-SDI (HD Ser. Dig. Interface)
Standard: SMPTE 292M
Data Bit Rate: 1.485Gbps
of Serial Outputs: 2
Connector: BNC (x2), female
of Video formats supported: 2
Video format standards: SMPTE274M (1080I, 29.97Hz), SMPTE296M (720P, 59.94Hz)
Embedded audio format: SMPTE299M
Sample rates supported: 32, 44.1, 48KHz
Sample rate out: 48KHz
of embedded audio chan pairs: 4 (2 complete audio groups)
Audio types supported: AC3, MPEG2 layer 1 and 2, or PCM
Embedded audio control: Selectable - "type"/disable (each pair independently controlled)
Audio type standard: Compressed (IEC 60958), Uncompressed (IEC 61937)
Closed Captions: Embedded - EIA-708B, Enable/Disable - selectable Analog Video (15-pin High Density Dsub) -
Video format standards: SMPTE274M (1080I), SMPTE296M (720P), SMPTE253M (480P, 480I), (reference: EIA 770.2 and 770.3)
of Analog outputs: 1 (shared: RGBHV and YPbPr) Connector:
Genlock Line and Pixel Adjustment

Video Output (1 Y,PbPr/RGBHV, 1 NTSC Composite) - **Option 8706** - (Installs in slot 1-1 or 2-1 when optional decoder cards are used).

General Function: This card is designed to provide you with both HD and SD analog video out. It is ideally used for monitoring purposes.

Video Standards: SMPTE274M (1080I), SMPTE296M (720P), SMPTE253M (480P, 480I) (reference: EIA 770.2 and 770.3)
Format resolution (selectable): 1920 x 1080 Interlaced, 1280 x 720 Progressive, 720 x 480 Progressive 720 x 480 Interlaced Native
Frame rates: 60/30, 59.94/29.97, 50/25Hz (progressive/interlaced)
Aspect Ratio: 16x9 (fixed: 1080I, 720P), 16x9, 4x3 (selectable: 480P, 480I)
Display Modes (selectable): HD: Letterbox, Cropped, Full, SD: Letterbox, Cropped
Composite General:
Standard: CCIR656 (525@59.94Hz), ANSI/SMPTE 170M-1994, PAL Standard
Output Formats (selectable):
NTSC: 480 Interlaced (not 483)
Display Modes (selectable): Letterbox, Cropped

Note: Simultaneous RGB/YPbPr and Composite operation in 480I@29.97Hz format only.

Analog Video:

of Outputs: 1 (shared: RGBHV and YPbPr)
Connector: High Density 15-pin Dsub, PbPr = 30KHz - 15MHz, +/-0.2dB ripple
H/V Sync: 4Vpp into 1Mohm, negative polarity
Composite Video Out -
of Outputs: 1 (NTSC/PAL)
Connector: BNC, female
NTSC Standard: ANSI/SMPTE 170M-1994, CCIR656
Format, Frame rate 525lines, 29.97Hz (480I)
Setup (pedestal): On/Off, selectable
Closed Caption: Enable/Disable, selectable
CC Standard: EIA-608B
Genlock YPbPr/RGB or Composite Line and Pixel Adjustment

Now, that you have looked at the video outputs, you'll need to look at what type of audio outputs you will need for your system configuration. The MRD3187A can provide both analog and digital audio output signals for use in legacy applications, or for pass-thru applications.

Audio Output (Dolby E, Digital, Analog) - Option 8707A - (Installs in all slots except 1-1 and 2-1).

General Function - Designed to provide, Dolby E digital data (for non-embedded and embedded applications), digital audio and analog audio for non-embedded audio applications. It provides the audio from 2 separate audio decoder processors on a decoder card and will also support SAP applications. It is the companion card to the SD (8706) card for any legacy broadcast or cable operations.

Audio Source: Selected Audio Services 1-4
of Services: 2 supported per 8707option card
Service Source: MRD Configuration 1 Opt 1/3 (2 services),MRD Configuration 1 Opt 2/4 (4 services) requires 2 - 8707A cards)
Dolby E PID: Dolby E Extracted Digital Data Output - Provides Extracted Dolby E for embedding
PCM Downmix (selectable): L/R, Lt/Rt, Mono1, Mono2 (selectable)
Modes: User defined, Monitor, Transmission

Digital Audio Out -

Digital Output format: SPDIF/AES3id Note: S/PDIF connector is BNC
Type (selectable): Raw (native - AC3, MPEG, etc.), PCM0 (uncompressed Ch1/2)
Dolby E: BNC Breakout Cable on 15-pin D-Sub Connector
Standard: IEC 60958-3 AC-3 (consumer), MPEG-1/2, layers 1 and 2 AES3id (IEC 60958-4/61937), Ch1/2 (professional) Note: S/PDIF connector is BNC
BNC(2), female

Connector:

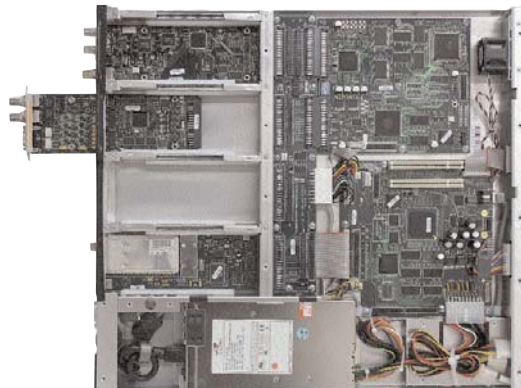
Analog Audio Out -
Output Type: Balanced, 2 channel pairs (+/-, L/R)
Source: Same as selected Digital PCM above
Conditions: Load=600ohms, -20dBFS encoded TS source
Amplitude: 4dBu (1.74Vpp/1.23Vrms) +/-5%
Max Output: 27dBu THD+N: <0.01%
Frequency Response: 20Hz to 20KHz < +/-0.1dBu
Connector: High density 15-pin D-sub, male

Options available:

8707 Opt 1: HD 15 to male XLR breakout cable
8707 Opt 2: 24.4dBu (18.2Vpp/12.86Vrms)



Back panel view of Atlas MRD3187A



Cut away view of board layout in MRD3187A

COFDM Input Card **Option 8715** - (Installs in any slot except 1-1 and 2-1).

General Function: Allows you to receive any COFDM signal for use in electronic news gathering (U.S.) or any COFDM Terrestrial Broadcast(DVB-T)(European) applications. It is designed to handle both 2K and 8K modes.

Specifications Not Available To Date

MPEG Over IP Input/Output Card **Option 8725** - (Card physically requires two slots, and is limited to one card per MRD chassis) The MRD 3187A chassis is required to install/use this card.

General Function: This card encapsulated the TS from the bus and will transmit IP streams, which are present on the bus, to either ASI/310M or to a decoder. Up to 2 multicasts can be subscribed to and 3 mirrored multicast can be transmitted. This card is capable of re-ordering up to 10 packets, skipping duplicate packets, and identifying/indicating packet loss.

Connector: 1-10/100/1000 Auto- negotiating Base-T
RJ45 Ethernet Port
1- SFP Port (Optical or CAT6)

FEC Transmit/Receive: Pro MPEG CoP3
Range: L*D<100
1<L<20
4<D<20
Annex B

Multicast Filtering: Filter based on IP address
(Avoids Problematic 30IP - 1 MAC)

Receive -
Input Format: RTP
Bitrate Range: 1.5(min.)-54(max.)Mbit/s
Packets/IP Frame: 7 MPEG Packets/IP Frame
IGMP Compatibility: Version 1-3
Network Jitter Buffer: 120ms

Transmit -
Output Format: RTP
Bitrate Range: 1.5(min.) - 54(max.) Mbit/s
Packets/IP Frame: 7 MPEG Packets/IP Frame
Number of Outputs: 3 Mirrored TS - Unicast and/or Multicast

Decoding

MPEG-2 Decoder (Video, 2 Audio) **Option 8730** - (Not slotted field installation - Factory Installed Option).

General Description - This card is designed to provide you with video decoding from a single video PID as well as 2 audio decoded outputs for 2 independent audio PID's. It is typically used as the decoder between a given input (RF, TS, QPSK) and a baseband output.

Compatibility Standard:	MPEG-2 compatible MP@HL 4:2:0
Bitstreams Accepted:	MPEG-1 video per ISO/IEC 11172-2 MPEG-2 video per ISO/IEC 13818-2 PES packets per ISO/IEC 13818-1
TS Bit Rate:	1.5 - 60Mbps
Video Decoder - Format @ Frame rate:	1080I @ 30Hz, 29.97Hz, 25Hz 720P @ 60Hz, 59.94Hz, 50Hz 480P @ 60Hz, 59.94Hz, 50Hz 480I @ 29.97Hz
Scalability:	Input/Output format fully selectable
Display modes supported:	Letterbox, Cropped, (selectable)
Aspect Ratio:	16x9, 4x3 (selectable - format dependant)
Audio Decoder - Decoder Capabilities:	AC-3 MPEG-1, layers I and II MPEG-2, layer II, All pass through compatible
Output formats:	IEC-60958 (uncompressed) IEC-61937 (compressed) PCM Downmix
Allowed MPEG-2 PES Formats:	MPEG-2, MPEG-1, AC-3, linear PCM
Audio Source:	Selected Audio Services 1-4
Service Source:	MRD Configuration 1 Opt 1/3 (2 services) MRD Configuration 1 Opt 2/4 (4 services)
PCM Downmix (selectable):	L/R (Stereo), Lt/Rt (Surround), Mono1, Mono2
Modes (selectable):	User defined, Monitor, Transmission

Note: AC-3 is a registered trademark of Dolby Laboratories.

In applications requiring multiple video outputs, a second decoder card is required. This will provide you with 4 decoded audios. If you intend to use these in a non-embedded application, an additional audio output card (8707) is required.



MPEG-2 Decoder (Video, 2 Audio) Option 8731 - (Not slotted field installation - Factory Installed Option).

General Description - This card is designed to provide you with video decoding from a single video PID as well as 2 audio decoded outputs for 2 independent audio PID's. It is typically used as the decoder between a given input (RF, TS, QPSK) and a baseband output. It also provides Genlock to HD and SD video output cards from a reference input. HD can be Genlocked to either a "black and burst" or tri-level sync. Provides for AV "lip-sync" control.

Compatibility Standard:	MPEG-2 compatible MP@HL 4:2:0
Bitstreams Accepted:	MPEG-1 video per ISO/IEC 11172-2 MPEG-2 video per ISO/IEC 13818-2 PES packets per ISO/IEC 13818-1
TS Bit Rate:	1.5 - 60Mbps
Video Decoder - Format @ Frame rate:	1080I @ 30Hz, 29.97Hz, 25Hz 720P @ 60Hz, 59.94Hz, 50Hz 480P @ 60Hz, 59.94Hz, 50Hz 480I @ 29.97Hz
Scalability:	Input/Output format fully selectable
Display modes supported:	Letterbox, Cropped, (selectable)
Aspect Ratio:	16x9, 4x3 (selectable - format dependant)
Audio Decoder - Decoder Capabilities:	AC-3 MPEG-1, layers I and II MPEG-2, layer II, All pass through compatible
Output formats:	IEC-60958 (uncompressed) IEC-61937 (compressed) PCM Downmix
Allowed MPEG-2 PES Formats:	MPEG-2, MPEG-1, AC-3, linear PCM
Audio Source:	Selected Audio Services 1-4
Service Source:	MRD Configuration 1 Opt 1/3 (2 services) MRD Configuration 1 Opt 2/4 (4 services)
PCM Downmix (selectable):	L/R (Stereo), Lt/Rt (Surround), Mono1, Mono2
Modes (selectable):	User defined, Monitor, Transmission
AV Lip-sync	Includes control for audio PTS and PCR tracing
Genlock capacity	Includes genlock capability for 8704A, 8705 video output card Limited support for earlier 8704 and 8706 video output card (No color burst phase adjust on NTSC outputs) HD - Adjustment of pixels and lines. Max number dependent on video mode SD - Adjustment of Color burst phase, pixels, and lines.
Genlock Reference	Video 480i @29.97, Ref NTSC "black and burst" Video 1080i @29.97 fps Ref NTSC "black and burst" or 1080i tri-level sync @29.97 fps Video 1080i @30 fps - Ref 1080i tri-level sync @ 30 fps Video 1080i @50 fps - Ref 1080i tri-level sync @ 50 fps Video 720p @ 50 fps - Ref 720p tri-level sync @ 50 fps Video 720p @ 59.94 fps - Ref 720p tri-level sync @ 59.94 fps Video 720p @ 60 fps - Ref 720 tri-level sync @ 60 fps

Note: AC-3 is a registered trademark of Dolby Laboratories

H.264/MPEG-4 Part 10 Decoder **Option 8732** (Not slotted field installation - Factory Installed Option).

General Description: The H.264 card is designed to operate with MPEG-4 Part 10 and will receive and decode H.264 audio and video streams. Applications include ENG, satellite, and mobile video services.

Reference Standards

Compatibility:	MPEG-2 4:2:0 MP@HL & MP@ML MPEG-4 H.264 Compatible MPL4 & HPL4.0
Video Decoder	
Video Bit Rate:	1-81Mb/s
TS Data Rate:	1-150 Mb/s
Primary Video Formats:	1080I@ 25Hz, 29.97Hz, 30Hz 720P@ 50Hz, 59.94Hz, 60Hz 480P@ 59.94Hz 480I@ 29.95Hz 576I@25Hz
Format Scaling:	Output Format Selectable
Display Modes:	Letterbox, Cropped, & Anamorphic
Aspect Ratio:	16x9, 4x3 (Selectable- format dependent)
Multiple Decoder Support:	An MRD can only support 1-8733, but can be used in conjunction with any other 87XX decoder card in a Config. 2 Backplane configuration.
Output formats:	IEC-60958 (uncompressed) IEC-61937 (compressed) PCM Downmix
Allowed MPEG-2 PES Formats:	MPEG-2, MPEG-1, AC-3, linear PCM
Service Source:	MRD Configuration 1 Opt 1/3 (2 services) MRD Configuration 1 Opt 2/4 (4 services)
PCM Downmix (selectable):	L/R (Stereo), Lt/Rt (Surround), Mono1, Mono2
Modes (selectable):	User defined, Monitor, Transmission
AV Lip-sync	Includes control for audio PTS and PCR tracing
Genlock capacity	Includes genlock capability for 8704A, 8705 video output card Limited support for earlier 8704 and 8706 video output card (No color burst phase adjust on NTSC outputs) HD - Adjustment of pixels and lines. Max. number dependent on video mode SD - Adjustment of Color burst phase, pixels, and lines.
Genlock Reference	Video 480i @29.97, Ref NTSC "black and burst" Video 1080i @29.97 fps Ref NTSC "black and burst" or 1080i tri-level sync @29.97 fps Video 1080i @30 fps - Ref 1080i tri-level sync @ 30 fps Video 1080i @50 fps - Ref 1080i tri-level sync @ 50 fps Video 720p @ 50 fps - Ref 720p tri-level sync @ 50 fps Video 720p @ 59.94 fps - Ref 720p tri-level sync @ 59.94 fps Video 720p @ 60 fps - Ref 720 tri-level sync @ 60 fps

MPEG-2 4:2:0/4:2:2 Decoder Option 8733 (Not slotted field installation - Factory Installed Option).

General Description - This card is designed to truly increase the versatility of your MRD 3187A by providing both 4:2:0 and 4:2:2 decoding capabilities. The 4:2:2 increases the color space decoding for use in satellite network contribution and post production work. It also provides you with 2 audio decoded outputs for 2 independent audio PIDs, as well as a Genlock reference for both HD & SD video outputs.

Reference Standards

Compatibility:

MPEG-2 compatible MP@ML 4:2:0
MPEG-2 compatible MP@HL 4:2:0
MPEG-2 compatible 4:2:2P@ML
MPEG-2 compatible 4:2:2P@HL

Bitstreams:

MPEG-1 video per ISO/IEC 11172-2
MPEG-2 video per ISO/IEC 13818-2
PES packets per ISO/IEC 13818-1

Video Decoder:

Video Bit Rate:

1.5 - 110 Mbps

TS Data Rate:

Dependant on Input Card

Primary Video Format:

1080I@25Hz, 29.97Hz, 30Hz
720P@50Hz, 59.94Hz, 60Hz
480P@59.94Hz
480I@29.95Hz
576I@25Hz

Simulcast Video Format:

480I@29.97Hz, 576@25Hz(Broadcast quality)

Format Scaling:

Output format selectable

Display Modes:

Letterbox, Cropped, & Anamorphic(selectable)

Aspect Ratio:

16x9, 4x3 (selectable - format dependant)

Multiple Decoder Support:

An MRD can only support 1 8732, but can be used in conjunction with any other 1 87XX decoder card in a Config. 2 backplane configuration

Video Output:

Standard Video Output Card 2xBNC 1 x Video Hi-Density
BNC1 - Port 1 Selectable HD or SD Output
BNC2 - Port 2 Simulcast SD Output from Port 1
15-Pin High Density - Component, Composite Break-out
Primary/Port 1 Software Selectable HD or SD

SD-SDI Output

270mbits/sec	SMPTE-259M-1997
480@29.97Hz	SMPTE 125M-1995
576@25Hz	“ “
4 AES Pairs 24bit Embedded	SMPTE-272M-1994

HD-SDI Output

1.5Gbits/sec	SMPTE-292M-1998
1080i@29.97Hz, 30Hz, 25Hz	SMPTE- 274M-1998
720p@59.94Hz, 60Hz, 50Hz	SMPTE-296M-1997, SMPTE-296M-2001
8 AES pairs 24bit Embedded	SMPTE-299M-1997
Simulcast/Port 2 down-converted output from Primary Port	

SD-SDI Output	
270mbits/sec	SMPTE-259M-1997

Input	Option	Description
	8701	RF Input 8VSB/QAM
	8702	Serial TS Input & Output (DVBASI/310M)
	8703	120 Meg MPTS Input w/Loop-thru
	8709	QPSK (45 MSPS, KU and C band non-encrypted)
	8715	COFDM (News Gathering and DVB-T) 2K adn 8K modes
	8725	IP Input/Output(Stream out up to 3 Unicast or Multicast
Output (Video)		
	8704A	Video Output (2 SDI, 1 NTSC Composite)
	8705	Video Output (2 HD-SDI, 1 Composite(Y,Pb,Pr/RGBHV))
	8706	Video Output (1 Y PBPr/RGBHV, 1 NTSC Composite)
	8725	IP Input/Output(Stream out up to 3 Unicast or Multicast
Output (Audio)		
	8707A	Audio Output (Digital, Analog)
MPEG-2		
	8730	(Factory Installed Option for Dual 4 Configuration) MPEG Decoder (Video, 2 Audio)
	8731	MPEG Decoder (Video, 2 Audio with Genlock)

Note: MRD 3187A can be factory equipped with the 8730 or 8731 Decoder depending upon your requirements

Now, that you have made you choices on how to outfit your Atlas, MRD3187A, let's look at some of the more common configurations and which cards are needed for that specific application.

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Common MRD3187A Configurations by Applications

Application- **Feeding A Legacy NTSC Transmitter From An 8 VSB Source**

MRD3187A with 1- (8730 Option Installed)
RF Input Card Option 8701
Audio Output Card Option 8707A
Video Output Card Option 8706

Application- **Feeding A Legacy NTSC (Analog) Cable Modulator From An 8 VSB Source**

MRD3187A with 1- (8730 Option Installed)
RF Input Card Option 8701
Audio Output Option 8707A
Video Output Option 8706

Application- **Feeding Local Off-Air 8 VSB Signal To Cherry Picker To A QAM Modulator**

MRD3187A with 1- (8730 Option Installed)
Serial TS Input and Output Card Option 8702
Video Output Card Option 8706 (Optional for Confidence Monitoring)
Audio Output Card Option 8707A (Optional for Confidence Monitoring)

Application- **Receiving Satellite Signal and Converting to ASI for Feeding HD Transmitter or Cable QAM Modulator.**

MRD3187A with 1- (8730 Option Installed)
Satellite Input Card (45 MBPS) Option 8709
Serial TS Input and Output Option 8702

- **Optional For Confidence Monitoring**

Video Output Card Option 8706
Audio Output Card Option 8707A

Application - **Contribution Satellite Feed to ASI**

MRD3187A with 1 - (8730 Option Installed)
Satellite Input Card(45 MBPS) Option 8709
Serial TS Input and Output Option 8702

- **Optional For Confidence Monitoring**

Video Output Card Option 8706
Audio Output Card Option 8707A

Application - **Satellite To HD Transmitter Feed**

MRD3187A	(Option 8730 Installed)
Satellite Card	Option 8709
Serial TS Input/Output	Option 8702

- **Optional For Confidence Monitoring**

Video Output Card	Option 8706
Audio Output Card	Option 8707A

Application - **Operational Decoder**

MRD3187A	Option 8730 Installed
Video Output	Option 8705

- **Optional For Confidence Monitoring**

Video Output Card	Option 8706
Audio Output Card	Option 8707A

Application - **Monitor Decoder**

MRD3187A	Option 8730 Installed
Serial TS Input/Output	Option 8702
Audio Output	Option 8707A
Video Output	Option 8706

- **Optional For Confidence Monitoring**

8 VSB Monitoring	Option 8730(2)
QPSK Monitoring	Option 8709

Application - **Operational/Monitoring Combo**

MRD3187A 2 Option 8730 Factory Installed

Serial TS Input/Output	Option 8702
Video Output	Option 8706

- **Optional For Confidence Monitoring**

Audio Output	Option 8707A
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