

Sencore AFN Platform

AFN-1000/250 - CONFIGURATION AND ORDERING GUIDE

FRAME SELECTION

To properly configure the AFN product, begin with frame selection. Sencore currently offers 2 frame options, the AFN-1000 1RU chassis or the more portable AFN-250 1/4RU chassis.

- The AFN-1000 frame includes a system host carrier with IP multiplexing capabilities, a web-based user interface, dual power supplies, and a front panel for base configuration. It can accommodate 7 additional function-based carriers.
- The AFN-250 frame is a light-weight portable chassis. While it has no front panel control, it shares the same web-based user interface and can be rack mounted with the purchase of optional hardware. It can accommodate a total of 2 carriers, a primary carrier which will include the system host functions and a secondary carrier for added functionality if desired. The AFN-250 has a single power supply.

AFN-1000 - SPECIFICATIONS

PHYSICAL / ENVIRONMENTAL

Temperature:

Operating: 0°C to 50°C / 32°F to 122°F Ambient
Storage: 40°C to 85°C / -40°F to 185°F Ambient

Non-condensing Relative Humidity:

95% Max

Power:

Dual Redundant Internal Power Supplies
Input Voltage: 90VAC - 264 VAC
Startup Consumption: 400mA (min)
Dual Side-to-Side Convective Cooling Fans

Measurements: (H X W X D):

1.75" X 18.97" X 18.51"
44.45 mm X 481.84 mm X 470.15 mm

Weight:

Frame Weight: 8.50 lbs/ 3.86 kgs
(Carrier Weights Not Included)

Safety & Certification:

CE / RoHS

INCLUDES SYSTEM HOST CARRIER

Dual GigE IP Input/Outputs (1Mbps. - 210Mbps.)
Primary - Web-Based Control / Secondary - TSOIP
· SRT, UDP, RTP (RFC 3550) encapsulated routes
· Supports BISS-CA Encryption (up to 80Mbps.)
· Supports multiple SPTS/MPTS w/bouquet management
· Supports Turn-Around (Pass stream intact)
· Supports KLV Metadata

AFN-250 - SPECIFICATIONS

PHYSICAL / ENVIRONMENTAL

Temperature:

Operating: 0°C to 50°C / 32°F to 122°F Ambient
Storage: -30°C to 70°C / -22°F to 158°F Ambient

Non-condensing Relative Humidity:

40-60%

Power:

Single Internal Power Supply
Input Voltage: 90~264VAC 50~60Hz
Startup Consumption: 165mA (min)
Side-to-Side Convective Cooling Fans

Measurements: (H X W X D):

1.72" X 5.20" X 14.70"
43.7mm X 132.1mm X 373.4mm

Weight:

Frame Weight: 2.35 lbs/1.07 kgs
(Carrier Weights Not Included)

Safety & Certification:

CE / RoHS

THE SYSTEM HOST FOR THIS DEVICE WILL BE INCLUDED IN YOUR PRIMARY FUNCTION BASED CARRIER SELECTION.

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ADDING VIDEO ENCODE CARRIERS

- The AFN-VEC0301-0600 carrier is capable of four video encodes and comes with four standard BNC inputs. This carrier can be placed in an AFN-1000 chassis or be added to the secondary slot of an AFN-250 chassis.
- The AFN-VEC0301-0501 carrier is capable of four video encodes and comes with four mini- DIN inputs. This carrier is specific to the AFN-250 frame and should be used in the primary slot as it also includes the system host functionality.

Select one or more Video and Audio Feature Keys to add encoding capabilities to the Encode Carrier.

VIDEO FEATURE KEYS

AFN-4K-UHD	Enables 4K(UHD)/HD/SD resolutions for a single channel of HEVC or AVC *Max 1 per VEC0301 carrier.
AFN-HEVC-Channel	Enables HD/SD resolutions for a single channel of HEVC. Also includes AVC & MPEG-2. *Max 4 per VEC0301 carrier.
AFN-AVC-Channel	Enables HD/SD resolutions for a single channel of AVC. Also includes MPEG-2. *Max 4 per VEC0301 carrier.
AFN-MPEG2-Channel	Enables HD/SD resolutions for a single channel of MPEG-2 *Max 4 per VEC0301 carrier.
AFN-10-bit/4:2:2	Enables 10-bit, 4:2:2 for any applicable CODEC and purchased channel. *Max 1 per VEC0301 carrier.
AFN-HDR	Enables HD/SD resolutions for a single channel of MPEG-2 *Max 1 per VEC0301 carrier. Requires 10-bit/4:2:2 license.

AUDIO FEATURE KEYS

AFN-MP/AAC-2Pairs	Enables two pairs of MP1L2, AAC-LC audio encoding per video encode. *Max 4 per encoder for MP1L2; max 2 per encoder for AAC.
AFN-DDAC3-2Pairs	Enables two pairs of DD AC3 audio decoding per video decode. *Max 4 per encoder.

VEC0301 - ENCODER TECHNICAL SPECIFICATIONS

VIDEO ENCODE PROFILES

Only one CODEC can be encoded per carrier at a time.

HEVC / H.265 Profiles:

Main, Main 10, Main 4:2:2 10, up to 4K/60p

Video Rates:

4K/UHD: 10.0 - 80.0 Mbps. (Encoder 1 Only)

HD: 1.1 - 24.5 Mbps.

SD: 0.2 - 3.0 Mbps.

Video Formats & Frame Rates:

4096 X 2160p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

3840 X 2160p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

1080p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

1080i: 60, 59.94, 50

720p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

576p: 50, 25

576i: 50

480p: 60, 59.94, 30, 29.97, 24, 23.97

480i: 60, 59.94

Chroma Sampling / Bit Depth:

4:2:2, 4:2:0 / 8-bit, 10-bit

AVC / H.264 Profiles:

BP, MP, HP, High 10, High 4:2:2, up to 4K/60p

Video Rates:

4K/UHD: 24.0 - 95.0 Mbps. (Encoder 1 Only)

HD: 1.5 - 24.5 Mbps.

SD: 0.5 - 16.0 Mbps.

Video Formats & Frame Rates:

4096 X 2160p: 50, 30, 29.97, 25, 24, 23.97

3840 X 2160p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

1080p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

1080i: 60, 59.94, 50

720p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

576p: 50, 25

576i: 50

480p: 60, 59.94, 30, 29.97, 24, 23.97

480i: 60, 59.94

Chroma Sampling / Bit Depth:

4:2:2, 4:2:0 / 8-bit, 10-bit

MPEG 2 Profiles:

MP@HL 4:2:0 8-bit, up to 1080/60i

Video Rates:

HD: 4.0 - 24.5 Mbps.

SD: 1.0 - 15.0 Mbps.

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Video Formats & Frame Rates:

1080p: 30, 29.97, 25, 24, 23.97
 1080i: 60, 59.94, 50
 720p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97
 576p: 50
 576i: 50
 480p: 60, 59.94
 480i: 60, 59.94

Chroma Sampling / Bit Depth:
 4:2:0 / 8-bit

AUDIO PROCESSING PROFILES

Audio Encoding Codecs:
 MPEG 1 Layer 2
 MPEG 2 Layer 2
 Dolby Digital AC3
 Dolby Digital Plus
 AAC-LC

Bit Rates: 48, 56, 64, 80, 96, 112, 128, 160, 192,
 224, 256, 320, 384, 448, 512 Kbit/s.

* Up to 8 pairs of audio per video.

INPUTS

SD-SDI / HD-SDI / 3G-SDI:
 SD - SMPTE 259M-C - with embedded
 audio per SMPTE 272M A, B, and C.

HD - SMPTE 292M with embedded audio
 per SMPTE 299M. 3G-SDI Level A and
 Level B.

VBI / VANC PROCESSING

Ancillary:
 Closed Captioning

ENCRYPTION

BISS-1 / BISS-E (up to 80 Mbps.)

LATENCY

Very Low / Low / Normal / Long

GOP

Open/ClosedIP / IBP / IBBP

Single Channel Mode

Ideal for 4K or HD single channel encoding
 applications. Audio is reconfigured in this mode
 to support 4 pairs per the single video.

VEC0301-0501 ONLY

Dual GigE IP Input/Outputs

Primary - Web-Based Control / Secondary - TSOIP

Output Rates: 1 - 210Mbps

SRT Send/Receive (up to 80 Mbps.)

MPEG 2 RTP v2 transport (RFC 3550)

MPEG 2 UDP transport

Supports multiple SPTS/MPTS w/bouquet management

Supports BISS-CA Encryption (up to 80 Mbps.)

Supports Turn-Around (Pass through)

Supports KLV Metadata

ADDING VIDEO DECODER CARRIERS

- The AFN-VDC0301-0600 decoder carrier is capable of two video decodes and comes with four standard BNC outputs. This carrier can be placed in an AFN-1000 chassis or be added to the secondary slot of an AFN-250 chassis.
- The AFN-VDC0301-0501 carrier is capable of two video decodes and comes with four mini-DIN outputs and hosts all of the audio on-board. This carrier is specific to the AFN-250 frame and should be used in the primary slot as it also includes the system host functionality.

* Note that there are 4 SDI Ouptuts per carrier but only 2 Decoders. This provides redundant outputs for SD/HD decode.

VIDEO FEATURE KEYS

AFN-4K-UHD	Enables 4K(UHD)/HD/SD resolutions for a single channel of HEVC or AVC *Max 1 per VDC0301 carrier.
AFN-HEVC-Channel	Enables HD/SD resolutions for a single channel of HEVC. Also includes AVC & MPEG-2. *Max 2 per VDC0301 carrier.
AFN-AVC-Channel	Enables HD/SD resolutions for a single channel of AVC. Also includes MPEG-2. *Max 2 per VDC0301 carrier.
AFN-MPEG2-Channel	Enables HD/SD resolutions for a single channel of MPEG-2 *Max 2 per VDC0301 carrier.
AFN-10-bit/4:2:2	Enables 10-bit, 4:2:2 for any applicable CODEC and purchased channel. *Max 1 per VDC0301 carrier.

AUDIO FEATURE KEYS

AFN-MP/AAC-2Pairs	Enables two pairs of MP1L2, AAC-LC, AAC-HEV1/v2 audio decoding per video decode. *Max 4 per decoder / Max 8 per VDC0301 carrier.
AFN-DDAC3-2Pairs	Enables two pairs of DD AC3 audio decoding per video decode. *Max 4 per decoder / Max 8 per VDC0301 carrier.

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VDC0301 - DECODER TECHNICAL SPECIFICATIONS

VIDEO DECODE PROFILES

Only one CODEC can be decoded per carrier at a time.

HEVC / H.265 Profiles:

Main, Main 10, Main 4:2:2 10, up to 4K/60p

Video Rates:

4K/UHD: 10.0 - 80.0 Mbps. (Decoder 1 Only)

HD: 1.0 - 24.5 Mbps.

SD: 0.2 - 3.0 Mbps.

Video Formats & Frame Rates:

4096 X 2160p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

3840 X 2160p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

1080p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

1080i: 60, 59.94, 50

720p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

576p: 50, 25

576i: 50

480p: 60, 59.94, 30, 29.97, 24, 23.97

480i: 60, 59.94

Chroma Sampling / Bit Depth:

4:2:2, 4:2:0 / 8-bit, 10-bit

AVC / H.264 Profiles:

BP, MP, HP, High 10, High 4:2:2, up to 4K/60p

Video Rates:

4K/UHD: 24.0 - 95.0 Mbps. (Decoder 1 Only)

HD: 1.0 - 24.5 Mbps.

SD: 0.5 - 16.0 Mbps.

Video Formats & Frame Rates:

4096 X 2160p: 50, 30, 29.97, 25, 24, 23.97

3840 X 2160p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

1080p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

1080i: 60, 59.94, 50

720p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

576p: 50, 25

576i: 50

480p: 60, 59.94, 30, 29.97, 24, 23.97

480i: 60, 59.94

Chroma Sampling / Bit Depth:

4:2:2, 4:2:0 / 8-bit, 10-bit

MPEG 2 Profiles:

MP@HL 4:2:0 8-bit, up to 1080/60i

Video Rates:

HD: 7.0 - 24.5 Mbps.

SD: 1.0 - 15.0 Mbps.

Video Formats & Frame Rates:

1080p: 30, 29.97, 25, 24, 23.97

1080i: 60, 59.94, 50

720p: 60, 59.94, 50, 30, 29.97, 25, 24, 23.97

576p: 50

576i: 50

480p: 60, 59.94

480i: 60, 59.94

Chroma Sampling / Bit Depth:

4:2:0 / 8-bit

AUDIO PROCESSING PROFILES

Audio Encoding Codecs:

MPEG 1 Layer 2

MPEG 2 Layer 2

Dolby Digital AC3

Dolby Digital Plus

AAC-LC

AAC-HEv1

AAC-HEv2

Bit Rates: 48, 56, 64, 80, 96, 112, 128, 160, 192,

224, 256, 320, 384, 448, 512 Kbit/s.

* Up to 8 pairs of audio per video.

VEC0301-0501 ONLY

Dual GigE IP Input/Outputs

Primary - Web-Based Control / Secondary - TSOIP

SRT Send/Receive (up to 80 Mbps.)

MPEG 2 RTP v2 transport (RFC 3550)

MPEG 2 UDP transport

Supports multiple SPTS/MPTS w/bouquet management

Supports Turn-Around (Pass through)

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ADDING TRANSPORT CARRIERS:

- The AFN-TMC0100-0100 carrier serves as an IP multiplexer. Capable of IP ingress and egress, it can be added to an encoder-based frame for an all-in-one solution. It can also be installed in a frame as a stand-alone multiplexer supporting turn-around or remux applications. This carrier can be placed in an AFN-1000 chassis or be added to the secondary slot of an AFN-250 chassis.
- The AFN-TMC0100-0400 carrier is an ASI multiplexer with output capabilities. With four independent or mirrored BNC ports, this carrier can be used for encoder transport or transport of remuxed or turn-around services. This carrier can be placed in an AFN-1000 chassis or be added to the secondary slot of an AFN-250 chassis.
- The AFN-TMC0100-0600 carrier is an ASI multiplexer with input capabilities. With four independent BNC ports, this carrier can be used as an integrated receiver for decoder applications or as a stand-alone receiver for turn-around or remux applications. This carrier can be placed in an AFN-1000 chassis or be added to the secondary slot of an AFN-250 chassis.

TRANSPORT/MULTIPLEXER TECHNICAL SPECIFICATIONS

IP Transport

Output

Use: Transport stream output. TSolP Egress (GigE) Standard: MPEG 2 RTP v2 transport (RFC 3550)
Output Rates: 1 - 210Mbps (188 byte DVB packet size, 7 per IP packet) MPEG 2 UDP transport
Supports multiple SPTS/MPTS w/bouquet management Supports Turn-Around (Pass through)

Standard: MPEG 2 UDP transport
Output Rates: 1 - 210Mbps (188 byte DVB packet size, 7 per IP packet)

Standard: SRT transport
Output Rates: 1 - 80Mbps

Connection speed: GigE (100/1000BaseT)

The sum of all transport streams must fall within the supported limit of 210Mbps. per carrier.

Connector: 2 X RJ45 10/100/1000 GigE
Transport Table Generation
MPEG Program Specific Information (PSI) table compliance:
PAT / CAT / PMT
DVB Service Information (SI) static table compliance:
SDT / NIT / EIT / TDT/TOT
ATSC A65B (PSIP) static table compliance:
MGT (TVCT) – Terrestrial / STT / RRT / EIT 0-3

Input

Use: Transport stream input. TSolP Ingress (GigE) concurrent with TSolP Egress (GigE).
Decode / Remux / Turn-Around Applications. In Remux applications, the tables are stripped. In Turn-Around applications, the stream is left in tact and passed from the input to the output.
Standard: MPEG 2 RTP v2 transport (RFC 3550)
Input Rates: 1 - 210Mbps (188 byte DVB packet size, 7 per IP packet)

Standard: MPEG 2 UDP transport
Output Rates: 1 - 210Mbps (188 byte DVB packet size, 7 per IP packet)

Standard: SRT transport
Output Rates: 1 - 80Mbps

Connection speed: GigE (100/1000BaseT)
The sum of all transport streams must fall within the supported limit of 210Mbps. per carrier.
Connector: 2 X RJ45 10/100/1000 GigE

ASI Transport

Output

Use: Transport stream output.
Standard: Asynchronous Serial Interface per EN500083-9 / ISO13818-1 MPEG 2 Transport Stream per EN 50083-9:1997 (188 byte only)
Output Rates: DVB-ASI 210Mb/s (SPTS and MPTS). The sum of all four transport streams must fall within the supported limit of 210Mbps. per carrier. Mirrored outputs are not additive.
Connector: Four independent or mirrored standard BNC (75 Ohm)
Transport Table Generation
MPEG Program Specific Information (PSI) table compliance:
PAT / CAT / PMT
DVB Service Information (SI) static table compliance:
SDT / NIT / EIT / TDT/TOT
ATSC A65B (PSIP) static table compliance:
MGT (TVCT) – Terrestrial / STT / RRT / EIT 0-3
Encryption: BISS-CA

Input

Use: Transport stream input.
Decode / Remux / Turn-Around Applications
In Remux applications, the tables are stripped.
In Turn-Around applications, the stream is left in tact and passed from the input to the output.
Standard: Asynchronous Serial Interface per EN500083-9 / ISO13818-1 MPEG 2 Transport Stream per EN 50083-9:1997 (188 byte only)
Input Rates: DVB-ASI 180Mbps (SPTS and MPTS).
Connector: Four independent standard BNC (75 Ohm). Each input can be routed to any decoder or output.

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COMMON AFN CONFIGURATIONS: COMPONENT LISTS

AFN-1000 Common Configurations

8-CH HEVC Encoder w/Max Audio

Includes eight channels of HEVC encoding up to 10-bit 4:2:2, eight pairs of (DD-AC3) audio encoding per video, IP & ASI Multiplexer.

Component List:

- 1 - AFN-1000 w/system host
- 2 - AFN-VEC0301-0600
- 32 - AFN-DDAC3-2Pairs
- 1 - AFN-TMC0100-0400
- 8 - AFN-HEVC-Channel (includes AVC & MP2)
- 2 - AFN-10-bit/4:2:2

8-CH HEVC Decoder w/Max Audio

Includes eight channels of HEVC decoding up to 10-bit 4:2:2, eight pairs of (MP/DD-AC3/AAC-LC/HEV1/2) audio decoding per video, IP & ASI Receiver.

Component List:

- 1 - AFN-1000 w/system host
- 4 - AFN-VDC0301-0600
- 1 - AFN-TMC0100-0600
- 8 - AFN-HEVC-Channel (includes AVC & MP2)
- 4 - AFN-10-bit/4:2:2
- 32 - AFN-DDAC3-2Pairs
- 32 - AFN-MP/AAC-2Pairs

4-CH AVC Encoder w/Advanced Audio

Includes four channels of AVC encoding up to 10-bit 4:2:2, four pairs of (MP/AAC-LC) audio encoding per video, IP & ASI Multiplexer.

Component List:

- 1 - AFN-1000 w/system host
- 1 - AFN-VEC0301-0600
- 8 - AFN-MP/AAC-2Pairs
- 1 - AFN-TMC0100-0400
- 4 - AFN-AVC-Channel (includes MP2)
- 1 - AFN-10-bit/4:2:2

4-CH AVC Decoder w/Advanced Audio

Includes four channels of AVC decoding up to 10-bit 4:2:2, four pairs of (MP/DD-AC3/AAC-LC/HEV1/2) audio decoding per video, IP & ASI Receiver.

Component List:

- 1 - AFN-1000 w/system host
- 2 - AFN-VDC0301-0600
- 1 - AFN-TMC0100-0600
- 4 - AFN-HEVC-Channel (includes AVC & MP2)
- 2 - AFN-10-bit/4:2:2
- 8 - AFN-DDAC3-2Pairs
- 8 - AFN-MP/AAC-2Pairs

AFN-250 Common Configurations

1-CH 4K/UHD HEVC Encoder w/Advanced Audio

Includes a single channels of 4K/UHD HEVC encoding with four pairs of (MP or AAC-LC) audio encoding, ASI & IP Multiplexer.

Component List:

- 1 - AFN-250
- 1 - AFN-VEC0301-0501 w/system host
- 2 - AFN-MP/AAC-2Pairs
- 1 - AFN-TMC0100-0400
- 1 - AFN-HEVC-Channel
- 1 - AFN-4K/UHD

IP to IP/ASI Turn-around Device

Dual In/Out GigE carrier & Quad ASI Output carrier with bouquet management or turn-around capabilities. UDP/RTP/SRT/DVB-ASI

Component List:

- 1 - AFN-250
- 1 - AFN-TMC0100-0100
- 1 - AFN-TMC0100-0400

2-CH AVC Encoder w/Min Audio

Includes two channels of AVC encoding up to 8-bit / 4:2:0, two pairs of (MP or AAC-LC) audio encoding per video, IP & ASI Multiplexer.

Component List:

- 1 - AFN-250
- 1 - AFN-VEC0301-0501 w/system host
- 2 - AFN-MP/AAC-2Pairs
- 1 - AFN-TMC0100-0400
- 2 - AFN-AVC-Channel

2-CH AVC Decoder w/Min Audio

Includes two channels of AVC decoding up to 8-bit / 4:2:0, two pairs of (MP/DD-AC3/AAC-LC/HEV1/2) audio decoding per video, IP & ASI Receiver.

Component List:

- 1 - AFN-250
- 1 - AFN-VDC0301-0501 w/system host
- 1 - AFN-TMC0100-0600
- 2 - AFN-AVC-Channel
- 2 - AFN-DDAC3-2Pairs
- 2 - AFN-MP/AAC-2Pairs