



# DHP300

# DTV Head-end Processor



## Product Outline

DHP300 DTV head-end processor is the new generation of intelligent headend processing equipment. This 1-U case comes with 6 independent module slots. Each module can be configured individually based on the applications including encoding, decoding, trans-coding, multiplexing, descrambling and modulating processing and the combination of all these functions. It supports multiple input and output interfaces and signal formats. With its powerful performance and low cost, DHP300 is especially adequate for the new generation CATV system.

## Key Features

- Support flexible combination of different type of modules
- Support up to 6 modules
- Support 2 GE input/output and 2 SFP / SFP +(1G/10G optional) input/output, Unicast/Multicast, RJ45/SFP + interface
- Support Web management, Updates via web
- Single or Redundancy power supply for option

## Module Specifications:

### 4 CVBS/SDI Encoding Module



DX214B

### Module Specifications:

Input: 4 CVBS (DB9 to RCA) or 4 SDI (BNC)

Video Encoding:

Video format: MPEG-2, MPEG4 AVC/H.264

Image format: PAL, NTSC SD signal (Only for CVBS input)

Resolution:

Input: 720\*576 @50i

Output: 720\*576/352\*288/320\*240/320\*180/176\*144/160\*120/160\*90@50Hz

Input: 720\*480 @60i

Output: 720\*480/352\*288/320\*240/320\*180/176\*144/160\*120/160\*90@60Hz

Rate Control: CBR/VBR

GOP structure: IPPP, IBPBP, IBBPB, IBBBP

Video bitrate: 0.5~5Mbps

Audio Encoding:

Audio format: MPEG1 Audio Layer 2, LC-AAC, HE-AAC

Sampling rate: 48KHz

Bits per sample: 32-bit

Bit-rate: 48-384Kbps each channel

Support **Logo, Caption, QR Code insertion**

## 4 HDMI Encoding Module



**DX224H/HV**

### Module Specifications:

Input: 4×HDMI (1.4) /SDI input, HDCP 1.4

Output: 1 MPTS and 4 SPTS output over UDP/RTP/RTSP; IPv4, IPv6 output

### Video Encoding:

Video format: HEVC/H.265 & MPEG 4 AVC/H.264

Resolution:

	Input	Output	
		HEVC/H.265	MPEG-4 AVC/H.264
DX224HV	4*1080P-50	4*1080P-50	4*1080P-25 2*1080P-50
	4*1080P-60/59.94	4*1080P-60, 4*1080P-59.94	4*1080P-30 4*1080P-29.97 2*1080P-60 2*1080P-59.94
	4*1080I-50	4*1080P-50, 4*1080P-25	4*1080I-50 4*1080P-25 2*1080P-50
	4*1080I-60/59.94	4*1080P-60, 4*1080P-30	4*1080I-60 4*1080P-30 2*1080P-60
	4*720P-50	4*720P-50	4*720P-50
	4*720P-60/59.94	4*720P-60, 4*720P-59.94	4*720P-60 4*720P-59.94
DX224H	4*1080P-50	4*1080P-50	4*1080P-50
	4*1080P-60/59.94	4*1080P-60, 4*1080P-59.94	4*1080P-60 4*1080P-59.94
	4*1080I-50	4*1080P-50, 4*1080P-25	4*1080P-25 4*1080P-50 4*1080I-50
	4*1080I-60/59.94	4*1080P-60, 4*1080P-30	4*1080P-30 4*1080P-60 4*1080I-60
	4*720P-50	4*720P-50	4*720P-50
	4*720P-60/59.94	4*720P-60, 4*720P-59.94	4*720P-60 4*720P-59.94

Chroma: 4:2:0

Bit rate (each channel): 0.5Mbps~20Mbps (H.265); 4 Mbps~20Mbps (H.264)

Rate Control: CBR/VBR

GOP structure: IBBP, IPPP

### Audio Encoding:

Audio format: MPEG-1 Layer 2, LC-AAC, HE-AAC, HE-AAC V2, AC3 Passthrough

Bit-rate (each channel):

48Kbps~384Kbps (MPEG-1 Layer 2 & LC-AAC);

24 Kbps~128 Kbps (HE-AAC); 18 Kbps~56 Kbps (HE-AAC V2)

Audio Gain: 0~255

Sampling rate: 48KHz

Support **Logo, QR Code insertion--Optional as per order**

**4 HDMI/SDI Encoding Module**

**DX224V**
**Module Specifications:**

Input: 4×SDI/HDMI (1.4) input, HDCP 1.4

**Video Encoding:**

 Video format: **HEVC/H.265** & MPEG 4 AVC/H.264

Resolution:

HDMI VI &amp; SDI:

Input	Output	
	HEVC/H.265	MPEG-4 AVC/H.264
4*1080P-50	4*1080P-50	2*1080P-50
4*1080P-60	4*1080P-60	2*1080P-60
4*1080I-50	4*1080P-50	4*1080I-50 2*1080P-50
4*1080I-60	4*1080P-60	4*1080I-60 2*1080P-60
4*720P-50	4*720P-50	4*720P-50
4*720P-60	4*720P-60	4*720P-60

**HDMI V2:**

3840×2160\_30P, 3840×2160\_29.97P;

(Encoding 2 CHs per module for H.265, and encoding 1 CH for H.264)

1920×1080\_60P, 1920×1080\_59.94P, 1920×1080\_50P;

(Encoding 4 CHs per module for H.265, and encoding 2 CHs for H.264)

1280×720\_60P, 1280×720\_59.94P, 1280×720\_50P

(Encoding 4 CHs per module for H.264 and H.265))

Chroma: 4:2:0

Bit rate: 0.5Mbps~20Mbps (each channel)

Rate Control: CBR/VBR

GOP structure: IBBP, IPPP

**Audio Encoding:**

Audio format: MPEG-1 Layer 2, LC-AAC, HE-AAC, HE-AAC V2, AC3 Passthrough

Sampling rate: 48KHz

Bit-rate (each channel):

48Kbps~384Kbps (MPEG-1 Layer 2 &amp; LC-AAC)

24 Kbps~128 Kbps (HE-AAC)

18 Kbps~56 Kbps (HE-AAC V2)

Audio Gain: 0~255

 Support **Logo, QR Code insertion**--Optional as per order

## 4 CVBS Encoding Module



### Module Specifications:

Input: 4 CVBS video, 4 Stereo Audio (DB9 to RCA)

#### Video Encoding:

Video format: MPEG-2 (4:2:0)

Image format: PAL, NTSC SD signal

Input resolution: 720×480\_60i, 544×480\_60i, 352×480\_60i, 352×240\_60i,  
320×240\_60i, 176×240\_60i, 176×120\_60i, 720×576\_50i,  
704×576\_50i, 640×576\_50i, 352×288\_50i, 320×288\_50i,  
176×288\_50i, 176×144\_50i

GOP structure: IP, IBP, IBBP, IBBBP

Video bitrate: 0.5Mbps~8Mbps per channel

Support CC (closed caption)

#### Audio Encoding:

Audio format: MPEG-1 Layer 2, DD AC3 (2.0)

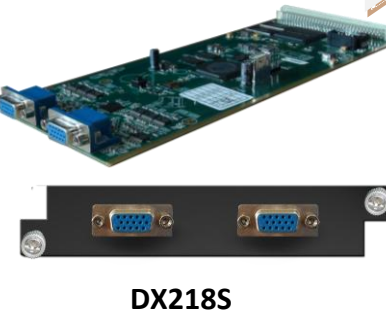
Sampling rate: 48KHz

Resolution: 24-bit

Audio bitrate:128/192/256/320/384kbps each channel

Support Logo, Caption, QR Code insertion (for DX214A only) (Language Supported: 中文, English, اردو, for more languages please consult us...)

## 8 CVBS Encoding Module



### Module Specifications:

Input: 8 CVBS video, 8 Stereo Audio (DB15 to RCA)

#### Video Encoding:

Video format: MPEG4 AVC/H.264

Image format: PAL, NTSC SD signal

Resolution: 720×576i, 720×480i

Rate Control: CBR/VBR

GOP structure: IPP

Video bitrate: 1~7Mbps each channel

#### Audio Encoding:

Audio format: MPEG-1 Layer 2

Sampling rate: 48KHz

Resolution: 24-bit

Bit-rate: 64/128/192/224/256/320/384Kbps each channel

Support Logo, Caption, QR Code insertion (Language Supported: 中文, English, اردو, for more languages please consult us...)

**2 HDMI Encoding/Transcoding Module**

**DX202A**
**Module Specifications:**

Input: 2\*HDMI, 2\*BNC for CC (Closed Caption) input and stream connector

**Video Encoding:**

Video format: MPEG2 & MPEG4 AVC/H.264

Input resolution:

1920\*1080\_60P, 1920\*1080\_50P, 1920\*1080\_60i, 1920\*1080\_50i,  
1280\*720\_60p, 1280\*720\_50P, 720\*480\_60i, 720\*576\_50i

Rate control mode: CBR/VBR

Aspect ratio: 16:9, 4:3

Video bitrate: 0.8~19Mbps for MPEG-2 /H.264 encoding

Support CC (closed caption)

**Audio Encoding:**

Audio format: MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC,  
Dolby Digital AC3 (2.0) encoding (Optional); AC3 (2.0/5.1) passthrough  
Sampling rate: 48KHz

Audio bitrate: 64Kbps-320kbps each channel

**Video Transcoding:**

2\*MPEG2 HD → 2\*MPEG2/H.264 HD; 2\*MPEG2 HD → 2\*MPEG2/H.264 SD;

2\* H.264 HD → 2\*MPEG2/H.264 HD; 2\* H.264 HD → 2\*MPEG2/H.264 SD;

4 \*MPEG2 SD → 4 \*MPEG2/H.264 SD; 4\* H.264 SD → 4 \*MPEG2/H.264 SD

**Audio Transcoding:**

MPEG-1 Layer 2, AC3 (Optional) and AAC any-to-any

**2 SDI Encoding/Transcoding Module**

**DX202A-D**
**Module Specifications:**

Input: 2\*HD-SDI and stream connector

**Video Encoding:**

Video format: MPEG2 & MPEG4 AVC/H.264

Input resolution:

1920\*1080\_60P, 1920\*1080\_50P, 1920\*1080\_60i, 1920\*1080\_50i,  
1280\*720\_60p, 1280\*720\_50P, 720\*480\_60i, 720\*576\_50i

Rate control mode: CBR/VBR

Aspect ratio: 16:9, 4:3

Video bitrate: 0.8~19Mbps for MPEG-2 /H.264 encoding;

Support CC (closed caption)

**Audio Encoding:**

Audio format:

MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC,  
Dolby Digital AC3 (2.0) encoding (Optional), AC3 (2.0/5.1) passthrough  
Sampling rate: 48KHz

Audio bitrate: 64Kbps-320kbps each channel

**Video Transcoding:**

2\*MPEG2 HD → 2\*MPEG2/H.264 HD; 2\*MPEG2 HD → 2\*MPEG2/H.264 SD;

2\* H.264 HD → 2\*MPEG2/H.264 HD; 2\* H.264 HD → 2\*MPEG2/H.264 SD;

4 \*MPEG2 SD → 4 \*MPEG2/H.264 SD; 4\* H.264 SD → 4 \*MPEG2/H.264 SD

**Audio Transcoding:**

MPEG-1 Layer 2, AC3 (Optional) and AAC any-to-any

**8 HDMI Encoding Module**

**DX228S**
**Module Specifications:**

Input: 8\*HDMI

Output: 1\*MPTS and 8\*SPTS output over UDP/RTP/RTSP, Unicast/Multicast

**Video Encoding:**

Video format: MPEG-4 AVC/H.264

Input resolution: 1920×1080\_60P, 1920×1080\_60i, 1920×1080\_50P, 1920×1080\_50i, 1280×720\_60P, 1280×720\_50P, 720×576\_50i, 720×480\_60i,

Output resolution: 1920×1080\_30P, 1920×1080\_25P, 1280×720\_30P, 1280×720\_25P, 720×576\_25P, 720×480\_30P,

GOP structure: IP...P (P Frame adjustment, without B Frame)

Video Bit-rate: 1Mbps~13Mbps each channel

Rate Control: CBR/VBR

**Audio Encoding:**

 Audio format: MPEG1 Layer II, LC-AAC, HE-AAC and AC3 Pass through, **support audio gain adjustment**

Sampling rate: 48 KHz

Resolution: 24-bit

Audio Bit-rate:

MPEG-1 Layer 2: 48/56/64/80/96/112/128/160/192/224/256/320/384 kbps

LC-AAC: 48/56/64/80/96/112/128/160/192/224/256/320/384 kbps

HE-AAC: 48/56/64/80/96/112/128 kbps

**Support Logo, Caption, QR Code insertion**

**4 HDMI Encoding Module**



**DX224HS**

**Module Specifications:**

Input: 4\*HDMI (1.4) input, HDCP 1.4

**Video Encoding:**

Video format: HEVC/ H.265, MPEG4 AVC/H.264

Input Resolution	Available Output Resolution
1920x1080P@60/59.94	1920x1080/1280x720/720*576/720*480P@60/50/30/25/24
1920x1080I@60/59.94	1920x1080/1280x720/720*576/720*480P@30/25/24
1920x1080P@50	1920x1080/1280x720/720*576/720*480P@50/30/25/24
1920x1080I@50	1920x1080/1280x720/720*576/720*480P@25/24
1280x720P@60/59.94	1280x720/720*576/720*480P@60/50/30/25/24
1280x720P@50	1280x720/720*576/720*480P@50/30/25/24
720*576I@50	720*576/720*480P@25/24
720*480I@60	720*480P@30/25/24

Chroma: 4:2:0

GOP structure: IP, IBBP, IBBBP

Video Bit-rate: 1Mbps~15Mbps per channel

Rate Control: CBR/VBR

**Audio Encoding:**

Audio format: MPEG-1 Layer 2, LC-AAC, HE-AAC, HE-AAC V2, AC3 Passthrough

Sampling rate: 48 KHz

Resolution: 24-bit

Audio Bit-rate (per channel):

48Kbps~384Kbps (MPEG-1 Layer 2 & LC-AAC)

24 Kbps~128 Kbps (HE-AAC) 18 Kbps~56 Kbps (HE-AAC V2)

**Others: Support Logo, Caption, QR Code insertion**

**2 Tuner Descrambling Module****DX912****Module Specifications:**

Stream in: 2 Tuner input, F Type

DVB-CI: 2 Independent common interface slots

Standard: DVB-C (J.83 A/C)/J.83B/ DVB-T /ISDB-T switchable

Standard: DVB-C (J.83 A/C); J.83B

Input Frequency: 60MHz~890MHz

Symbol rate: 1000~9000Ksps

Constellation: 16/32/64/128/256 QAM; 64/256 QAM for J.83B

Standard: DVB-T

Frequency In: 60MHz~890MHz

Bandwidth: 5/6/7/8M bandwidth

Standard: ISDB-T

Input Frequency: 60-890MHz

Signal Strength: -65~ -25dBm

**Multiplexing:**

Maximum PID Remapping: 256 output pids

Function: PID remapping (automatically or manually), Accurate PCR adjusting, generate PSI/ SI table automatically

**Descrambling:**

CAM/CI Quantity: 2

BISS Mode: Mode 1, Mode E; up to 120Mbps (Optional as required)

**2 Tuner Descrambling Module**

**DX902A**
**Module Specifications:**

Stream in: 2 Tuner input, F Type

16 IP inputs (UDP/RTP) from data port, unicast and multicast, IGMP V2/V3

Stream out: 1 MPTS and 16 SPTS outputs(under developing) over UDP/RTP/RTSP,Unicast/Multicast

DVB-CI: 2 Independent common interface slots

Standard: DVB-S/S2/S2X

Tuner Section	DVB-S	Input Frequency: 950-2150MHz Symbol Rate: QPSK0.5~45Msp FEC Demodulation: 1/2, 2/3, 3/4, 5/6, 7/8
	DVB-S2	Input Frequency: 950-2150MHz Symbol rate: QPSK/8PSK/16APSK: 0.5~45 Msps; 32APSK: 0.5~40 Msps FEC Demodulation: QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 32APSK: 3/4, 4/5, 5/6, 8/9
	<b>DVB-S2X</b>	Input Frequency: 950-2150MHz Symbol rate: QPSK/8PSK/16APSK: 0.5~45 Msps; 8APSK/32APSK: 0.5~40 Msps FEC Demodulation: QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10, 13/45, 9/20, 11/20 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10, 23/36, 25/36, 13/18 8APSK: 5/9-L, 26/45-L 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10, 1/2-L, 8/15-L, 5/9-L, 26/45, 3/5, 3/5-L, 28/45, 23/36, 2/3-L, 25/36, 13/18, 7/9, 77/90 32APSK: 3/4, 4/5, 5/6, 8/9, 2/3-L, 32/45, 11/15, 7/9

Signal Strength: -65~ -25dBm

Support Diseqc function

**Multiplexing:**

Maximum PID Remapping: 256 output pids

Function: PID remapping (automatically or manually), Accurate PCR adjusting, generate PSI/ SI table automatically

**Descrambling:**

CAM/CI Quantity: 2

BISS Mode: Mode 1, Mode E; up to 120Mbps

**4 FTA Tuner Module**

**DX904B**
**Module Specifications:**

Stream in: 4 Tuner input, F Type

Stream out: 1 MPTS out over UDP/RTP, unicast/multicast

**Standard: DVB-S/S2/S2X**

Tuner Section

**DVB-S** Input Frequency: 950-2150MHz

Symbol Rate: QPSK: 0.5~45 Msps

FEC Demodulation: 1/2, 2/3, 3/4, 5/6, 7/8

**DVB-S2** Input Frequency: 950-2150MHz

Symbol rate: QPSK/8PSK/16APSK: 0.5~45 Msps;

32APSK: 0.5~40 Msps

FEC Demodulation: QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10

16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

32APSK: 3/4, 4/5, 5/6, 8/9

**DVB-S2X** Input Frequency: 950-2150MHz

Symbol rate: QPSK/8PSK/16APSK: 0.5~45 Msps;

8APSK/32APSK: 0.5~40 Msps

FEC Demodulation: QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10,

13/45, 9/20, 11/20

8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10, 23/36,

25/36, 13/18

8APSK: 5/9-L, 26/45-L

16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10, 1/2-L,

8/15-L, 5/9-L, 26/45, 3/5, 3/5-L,

28/45, 23/36, 2/3-L, 25/36, 13/18,

7/9, 77/90

32APSK: 3/4, 4/5, 5/6, 8/9, 2/3-L, 32/45,

11/15, 7/9

Signal Strength: -65 ~ -25dBm

Support Diseqc function

**Multiplexing:**

Max number of managing PID: 256

Function: PID remapping (automatically/ manually), Accurate PCR adjust, PID pass-through

4 frequencies Descrambling Module



DX942A

Stream in: 4 frequencies input(each RF in interface for 2 frequencies locking), F Type, 16 IP inputs(UDP/RTP) from data port, unicast and multicast, IGMP V2/V3  
 Stream out: 1 MPTS and 16 SPTS output over UDP and RTP/RTSP, Unicast/Multicast  
 DVB-CI: 2 independent common interface slots  
 Standard: DVB-C (J.83 A/C)/J.83B/ DVB-T/ISDB-T switchable

Standard: DVB-C (J.83 A/C); J.83B  
 Input Frequency: 60MHz~890MHz  
 Symbol rate: 1000~9000Ksps  
 Constellation: 16/32/64/128/256 QAM; 64/256 QAM for J.83B

Standard: DVB-T  
 Frequency In: 60MHz~890MHz  
 Bandwidth: 5/6/7/8M bandwidth

Standard: ISDB-T  
 Input Frequency: 60-890MHz

**Multiplexing:**

Maximum PID Remapping: 256 output pids  
 Function: PID remapping (automatically or manually), generate PSI/ SI table automatically

**Descrambling:**

CAM/CI Quantity: 2  
 BISS Mode: Mode 1, Mode E; 32 BISS Keys

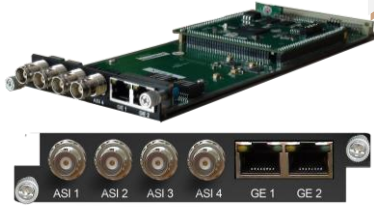
4 ASI/IP Multiplexing Module



DX504

**Module Specifications:**

ASI inputs/outputs: 4 ASI bi-direction, BNC 75Ω (manually set input or output)  
 IP inputs/outputs: 2 GE Ports in the module (100/1000Mbps self-adaption) and the DHP300 chassis (data ports or other modules)  
 Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically  
 Stream In: maximum 4 ASI input, 768 IP inputs over UDP/RTP (256 IP inputs thru GE1, GE2 in the module and the DHP300 chassis respectively)  
 Stream Out: maximum 4 ASI output, 4 MPTS output over UDP/RTP thru GE1, GE2 in the module and thru the DHP300 chassis

**4/8 CH EAS Multiplexing Module**

**DX504E/DX508E**
**Module Specifications:**

ASI input: ASI1 input (SPTS), BNC 75Ω

IP input: 256 IP input thru 1 GE1 (100/1000M)

EAS Source: ASI1 or IP (the 256th IP) (ASI&IP should be SPTS, both can't mux, source Bitrate ≤ 10Mbps)

Re-multiplexing: PID remapping, PCR correction (only for IP), generate PSI/ SI table automatically

Stream Out: 4 IP output thru GE1, maximum 16 programs each channel--DX504E

Stream Out: 8 IP output thru GE1, maximum 8 programs each channel--DX508E

**5 ASI Multiplexing Module**

**DX505**
**Module Specifications:**

ASI inputs/outputs: 5 ASI bi-direction, BNC 75Ω (manually set input or output)

IP inputs/outputs: the DHP300 chassis (data ports or other modules)

Stream in: maximum 5 ASI input, 256 IP inputs over UDP/RTP thru the DHP300 chassis

Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically

Stream out: maximum 5 ASI output, 5 MPTS out over UDP/RTP thru the DHP300 chassis

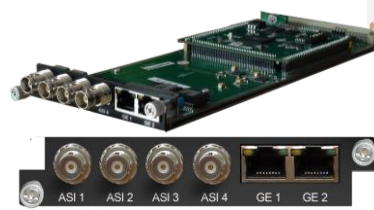
**IP De-Multiplexing Module**

**DX506**
**Module Specifications:**

IP input: 512 SPTS or MPTS input over UDP, RTP, Unicast and Multicast thru GE1 Ethernet Port (100/1000M)

Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically

Stream Out: 512 SPTS output over UDP, RTP, Unicast and Multicast through GE2 Ethernet Port (100/1000M)

**ASI/IP Mux-Scrambler Module**

**DX514**
**Module Specifications:**

ASI inputs/outputs: 4 ASI bi-direction, BNC 75Ω

IP inputs/outputs: 2 Ethernet Port (100/1000M)

Stream connector input

Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically

Stream In: maximum 4 ASI input, IP input over UDP/RTP/

Stream Out: maximum 4 ASI output, 4 IP (MPTS) output over UDP/RTP/RTSP

**Scrambling:**

Maximum simulcrypt CA: 4

Standard: ETR289, ETSI 101 197, ETSI 103 197

Connection: Local/remote connection

## ASI TS Switch Module

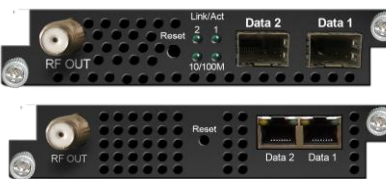


**DX515**

### Module Specifications:

- Input: 3 ASI
- Output: 2 ASI mirror out
- TS packet: 188/204
- Switch Mode: Manually/Auto
- Support monitor program status (bitrate, continuous counting, synchronization status)
- Support channel mode and program mode switching
- Support to switch back to the main stream manually or automatically once the main stream recovers

## 16/32 QAM Modulating Module



**DX316/DX332**

### Module Specifications:

- Data input: 512 or 1024 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP), Stream connector
- Data output: 16 or 32 IP output over UDP/RTP/RTSP, unicast/multicast, 2 GE Ports (RJ45/SFP)
- Trans Rate: Max 840Mbps/GE Port
- RF output (F type): 16/32 channels of multiplexing, scrambling and modulation.
- Multiplexing:**
  - Maximum PID Remapping: 180 output pids per channel for DX316, 256 output pids per channel for DX332
  - Function: PID remapping (automatically or manually), Accurate PCR adjusting, generate PSI/SI table automatically
- Scrambling:**
  - Maximum simulcrypt CA: 4
  - Standard: ETR289, ETSI 101 197, ETSI 103 197
  - Connection: Local/remote connection
- Modulation:**
  - Standard: EN300 429/ITU-T J.83A/B (DVB-C) MER: ≥40dB
  - RF frequency: 50~960MHz, 1KHz step
  - RF output level: -20~+10dBm (87~117 dBμV), 0.1dB step for all carriers
  - Symbol Rate: 5.0Msps~7.0Msps, 1ksps stepping
  - Constellation: 16/32/64/128/256QAM
  - DX316 Output: 16 non-adjacent carrier outputs within 192M bandwidth
  - DX332 Output: 32 non-adjacent carrier outputs within 384M bandwidth

**48 QAM Modulating Module**

**DX348D**
**Module Specifications:**

Data input: 1024 IP input over UDP/RTP, unicast/multicast, 2 GE Ports (RJ45/SFP), 512 IP input through stream connector

Data output: 48 IP output over UDP/RTP/RTSP, unicast/multicast, 2 GE Ports (RJ45/SFP), GE1 for IP #1-#24, GE2 for IP #25-#48

Trans Rate: Max 840Mbps/GE Port

RF output: 2 F type output ports for 48 non-adjacent carriers, 75Ω

Carrier 1~24 out thru RF1, 25~48 thru RF2, each RF supports 384M bandwidth

Multiplexing:

Maximum PID Remapping: 256 output PIDs per channel

Function: PID remapping (automatically or manually), Accurate PCR adjusting, generate PSI/SI table automatically

**Scrambling:**

Maximum simulcrypt CA: 6

Standard: ETR289, ETSI 101 197, ETSI 103 197

Connection: Local/remote connection

**Modulation:**

Standard: EN300 429/ITU-T J.83A/B/C MER: ≥40dB

RF frequency: 50~960MHz, 1KHz step

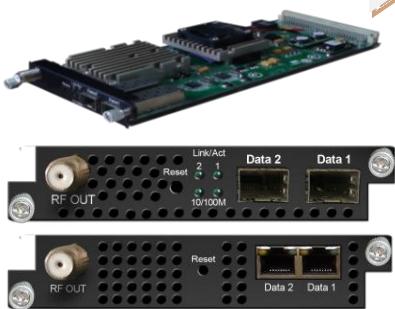
RF output level: -20~+10dBm (87~117 dBμV), 0.1dB step for all carriers

Symbol Rate: 3600~7000Ksps, 1ksps stepping

5057Ksps (J.83B, 64QAM), 5361Ksps (J.83B, 256QAM)

Constellation/Bandwidth: J.83A: 16/32/64/128/256QAM, 8M

J.83B/C: 64/256QAM, 6M

**8 DVB-T/ATSC Modulating Module**

**DX308T/DX308AT**
**Module Specifications:**

Data input: Stream connector

256 IP input over UDP/RTP, 2GE Ports (RJ45/SFP)

Data output: 8 IP output over UDP/RTP/RTSP, unicast/multicast, 2 GE Ports (RJ45/SFP)

Trans Rate: Max 840Mbps/GE Port

RF Output (F type): 8 non-adjacent carrier outputs within 192M bandwidth

**Multiplexing:**

Channel Number: 8 multiplexing channels

Maximum PID Remapping: 180 output pids per channel

Function: PID remapping (automatically or manually), Accurate PCR adjusting, generate PSI/ SI table automatically

**Modulation: DX308T (8\*DVB-T)**

Standard: ETSI EN300 744 MER: ≥40dB

RF Frequency: 50~960MHz, 1KHz step

Constellation: QPSK/16QAM/64QAM Bandwidth: 6/7/8 MHz

Trans mode: 2K/4K/8K FEC: 1/2, 2/3, 3/4, 5/6, 7/8

RF Output Level: -20~+10dBm (for all carriers), 0.5dB step

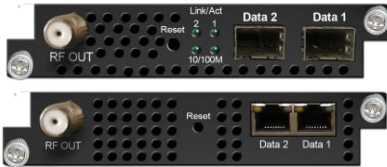
**Modulation: DX308AT (8\*ATSC)**

Standard: ATSC A/53 MER: ≥40dB RF Frequency: 50~960MHz, 1KHz step

Constellation: 8VSB Bandwidth: 6MHz FEC: RS(208 188)+Trellis

RF Output Level: -20~+10dBm (for all carriers), 0.5dB step

**6 ISDB-Tb Modulating Module**



**DX306I**

**Module Specifications:**

Data input: 32x6 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP) and stream connector

Data output: 6 IP output over UDP/RTP/RTSP, unicast/multicast, 2 GE Ports (RJ45/SFP)

Trans Rate: Max 840Mbps/GE Port

RF output (F type): 6 channels of multiplexing and modulation.

**Multiplexing:**

Maximum PID Remapping: 180 output pids per channel

Function: PID remapping (automatically or manually), Accurate PCR adjusting, generate PSI/ SI table automatically

**Modulation:**

Standard: ARIB STD-B31

Bandwidth: 6M

Constellation: QPSK, 16QAM, 64QAM

Guard Interval: 1/32, 1/16, 1/8, 1/4

Transmission Mode: 2K, 4K, 8K

Code rate: 1/2, 2/3, 3/4, 5/6, 7/8

MER:  $\geq 40\text{dB}$

RF frequency: 50~960MHz, 1KHz step

RF output level: -20dBm~+10dBm (87~117dB $\mu$ V), 0.1dB stepping

**2 HD-SDI Decoding Module**



**DX702**

**Module Specifications:**

ASI input/output: 2 ASI bi-directions, BNC 75 $\Omega$

Stream Connector input

Decoding:

Video/Audio Out: 2 HD/SD SDI output

Video Format: MPEG-2, MPEG-4 AVC/H.264

Resolution: 480i,480p,576i,576p,720p@50/59.94/60,1080i@50/59.94/60

Chroma: 4:2:0

Audio Format: MPEG1 Layer2, LC-AAC, HE-AAC, AC3 (2.0/5.1), AC3 Passthrough,

Support **Dual Audio** Out

Support CC/Subtitle

**4 HDMI Decoding Module**



**DX714**

**Module Specifications:**

Input: 1 IP (MPTS/SPTS) input over UDP thru stream connector, Unicast/Multicast

Output: 4 HDMI output

Decoding:

Video/Audio Out: 4 HDMI output with 1 channel stereo audio embedded in each port

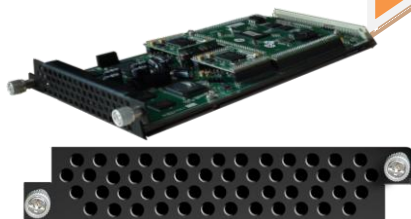
Video Format: MPEG-2, MPEG-4 AVC/H.264, HEVC/H.265, AVS, AVS+

Audio Format: MPEG 1 Layer 2, LC-AAC, HE-AAC, AC3 (2.0)

Resolution: 480i, 480p, 576i, 576p,1280x720\_50p, 1280x720\_60p,

1920x1080\_50i, 1920x1080\_50p 1920x1080\_60i, 1920x1080\_60p

Support **manually upscale/downscale resolution**

**2 IP Transcoding Module**

**DX202**
**Module Specifications:**

Input: Stream connector

Resolution: 480i, 576i, 720P@50, 720P@60, 1080i@50, 1080i@60, 1080P@50, 1080P@60

**Video Tanscoding:**

2\*MPEG-2/ H.264/ AVS/AVS+ HD/SD → 2\* H.264 HD/SD

Video Bit-rate: 1~19.5Mbps each channel

Rate Mode: CBR/VBR          GOP Struct: IBBP, IPPP, IBP

**AudioTanscoding:**

MPEG-1 Layer II, LC/HE-AAC, AC3, DRA→ MPEG-1 Layer II, LC/HE-AAC

Audio bitrate: 64/96/128/192/256/320/384Kbps          Audio Gain Control: 0-100

## Equipment Specifications:

### Base Unit Parameters

Dimension (W×L×H): 482mm×410mm×44mm
Environment: 0~45 °C (work); -20~80 °C (Storage)
Power requirements AC 110V± 10%, 50/60Hz, AC 220 ± 10%, 50/60Hz
Power Supply: Single or Redundancy power supply for option, as per order

## Parameters Comparison:

	DHP400	DHP300
<b>IP Data Transport</b>	One-way Transport: GE1/GE2 support output maximum 8 MPTS & 512 SPTS	Bi-directional Transport: GE1/GE2. SFP+1/ SFP+2 (1G/10G optional) support IP data input and output
<b>TS Processing Number</b>	Support 1 TS (MPTS/SPTS) input from each module, and maximum bit rate is 350Mbps	N/A
<b>Multiplexing</b>	Support multiplexing function: It can mux TSs from different modules to one TS and output through one module or GE1/GE2 port	Doesn't support multiplexing function: It can combine TSs from different modules and output these TSs through one module or GE1/GE2 SFP/SFP+ port
<b>Output Per Module</b>	1 MPTS after multiplexing	1 or Multiple MPTS/SPTS
<b>LED</b>	N/A	LED in the front panel show IP address