



DHP 400A

DTV Head-end Processor

Product Outline

DHP400A 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, DHP400A is especially adequate for the new generation CATV system.

Key Fetures

- Support flexible combination of different type of modules
- Support up to 6 modules
- Support 1 ASI output (GE1)
- Support IP input and output from GE2, and IP output from GE1
- Support Web management, Updates via web

Module Specifications:

Input: 2*HDMI, 2*BNC for CC (Closed Caption) input

Output: 1*MPTS output over UDP/RTP, unicast/multicast, RJ45/SFP interface

Video Encoding:

Video format: MPEG2 & MPEG4 AVC/H.264

Input resolution:

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 Support CC (closed caption)

Video bitrate: 0.5~19.5Mbps for H.264 encoding

1~19.5Mbps for MPEG-2 encoding

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 Tanscoding:

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 Tanscoding:

MPEG-1 Layer 2, AAC and AC3 any-to-any



Redundancy Power Supply (optional)

2 HDMI Encoding/Transcoding Module



DX202A

4 HDMI Encoding Module



DX224

Module Specifications:

Input: 4*HDMI

Output: 1*MPTS & 4*SPTS output over UDP/RTP, unicast/multicast, RJ45/SFP interface

Video Encoding:

Video format: MPEG-4 AVC/H.264

Input resolution:

1920×1080_60P, 1920×1080_50P, 1920×1080_60i, 1920×1080_50i, 1280×720_60P, 1280×720_50P, 720×576_50i, 720×480_60i

Support HD (1080i/720p_50/60) to SD (576p/480p_25/30) resolution downscale conversion

GOP structure: IBBP

Video bitrate: 0.8Mbps~19Mbps each channel

Rate Control: CBR/VBR

Audio Encoding:

Audio format: MPEG1 Layer II, (MPEG-2 AAC, MPEG-4 AAC Optional), AC3 passthrough

Sampling rate: 48KHz

Resolution: 24-bit

16/32 QAM Modulating Module



DX316/DX332

Module Specifications:

Data input: 512×2 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP)

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 input per channel

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

2 Tuner Descrambling Module



DX902/DX912

Module Specifications:

Stream in: 2 Tuner input, F Type

Stream out: 1 MPTS output

DVB-CI: 2 independent common interface slots

Standard: DX902: DVB-S/S2; DX912: DVB-C

Tuner Section	DVB-S	Input Frequency: 950-2150MHz Symbol Rate: QPSK 1~45Mbauds Signal Strength: -65~ -25dBm FEC Demodulation: 1/2, 2/3, 3/4, 5/6, 7/8
	DVB-S2	Input Frequency: 950-2150MHz Symbol rate: QPSK/8PSK 1~45Mps 16APSK 1~45 Mps 32APSK1~32 Mps FEC Demodulation: 1/2, 2/3, 3/4,5/6,7/8, 4/5,5/6,8/9, 9/10
	DVB-C	Standard: J.83A(DVB-C), J.83B, J.83C Input Frequency: 30-960MHz Constellation: 16/32/64/128/256 QAM

Support Diseqc function (For DX902)

Multiplexing:

Maximum PID Remapping: 256 input

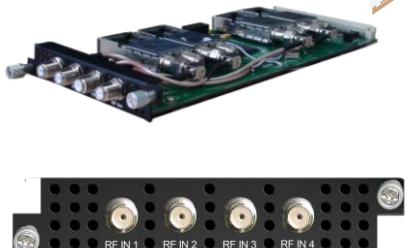
Function: PID remapping (automatically or manually), Accurate PCR adjusting, generate PSI/ SI table automatically

Descrambling:

CAM/CI Quantity: 2

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

4 FTA Tuner Module



DX904A/DX914A/DX944A

Module Specifications:

Stream in: 4 Tuner input, F Type

Stream Out: 4* MPTS output over UDP/RTP, unicast/multicast, RJ45/SFP interface

Standard: DX904: DVB-S/S2; DX914: DVB-C; DX944: DVB-T/T2

	DVB-S	DVB-S2
Input Frequency:	950-2150MHz	950-2150MHz
Symbol Rate:	QPSK 1~45 Mps	QPSK/8PSK 1~45 Mps, 16APSK 1~45 Mps, 32APSK1~32 Mps <i>(16APSK&32APSK are optional as required)</i>
FEC Demodulation:	1/2, 2/3,3/4,5/6,7/8	1/2, 2/3,3/4,5/6,7/8,4/5,5/6,8/9, 9/10
Signal Strength:	-65 ~ -25dBm	
Support Diseqc function (For DX904)		

DVB-C Standard: J.83A (DVB-C), J.83B, J.83C
Input Frequency: 30-1000MHz
Constellation: 16/32/64/128/256 QAM

DVB-T/T2: Standard: DVB-T/T2
Input Frequency: 30 MHz~1000 MHz
Bandwidth: 6M, 7M, 8M

Multiplexing:

Maximum PID Remapping: 256 input

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

Equipment Specifications:

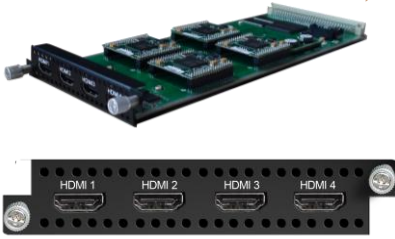
Base Unit Parameters

Dimension(W×L×H): 482mm×410mm×44mm
Approx weight: 8kg
Environment: 0~45℃(work); -20~80℃(Storage)
Power requirements AC 110V± 10%, 50/60Hz, AC 220 ± 10%, 50/60Hz
Power consumption : 20W

Parameters Comparison:

	DHP400	DHP400A
IP Data Transport	One-way Transport: GE1/GE2 support output maximum 8MPTS & 512SPTS	Bi-directional Transport: GE1 support IP data input GE2 support IP data both input and output
TS Processing Number	Support 1 TS (MPTS/SPTS) input from each module, and maximum bitrate is 350Mbps	Support maximum 512 TS (MPTS/SPTS) input from each module, and maximum bitrate is 350Mbps
Multiplexing	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 port
Output Per Module	1 MPTS after multiplexing	1 or multiple MPTS/SPTS

4 HDMI Encoding Module



DX224

Module Specifications:

Input: 4*HDMI

Output: 1*MPTS & 4*SPTS output over UDP/RTP, unicast/multicast, RJ45/SFP interface

Video Encoding:

Video format: MPEG-4 AVC/H.264

Input resolution:

1920×1080_60P, 1920×1080_50P, 1920×1080_60i, 1920×1080_50i, 1280×720_60P, 1280×720_50P, 720×576_50i, 720×480_60i

Support HD (1080i/720p_50/60) to SD (576p/480p_25/30) resolution downscale conversion

GOP structure: IBBP

Video bitrate: 0.8Mbps~19Mbps each channel

Rate Control: CBR/VBR

Audio Encoding:

Audio format: MPEG1 Layer II, (MPEG-2 AAC, MPEG-4 AAC Optional), AC3 passthrough

Sampling rate: 48KHz

Resolution: 24-bit

16/32 QAM Modulating Module



DX316/DX332

Module Specifications:

Data input: 512×2 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP)

Data output: 16 or 32 IP output over UDP/RTP/RTSP, unicast/multicast, 2 GE Ports (RJ45/SFP)

Trans Rate: Max 840Mbps/GE Port

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Scrambling:

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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

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2 Tuner Descrambling Module



DX902/DX912

Module Specifications:

Stream in: 2 Tuner input, F Type
 Stream out: 1 MPTS output
 DVB-CI: 2 independent common interface slots
 Standard: DX902: DVB-S/S2; DX912: DVB-C

Tuner Section	DVB-S	Input Frequency: 950-2150MHz Symbol Rate: QPSK 1~45Mbauds Signal Strength: -65~ -25dBm FEC Demodulation: 1/2, 2/3, 3/4, 5/6, 7/8
	DVB-S2	Input Frequency: 950-2150MHz Symbol rate: QPSK/8PSK 1~45Mpsps 16APSK 1~45 Mpsps 32APSK1~32 Mpsps FEC Demodulation: 1/2, 2/3, 3/4,5/6,7/8, 4/5,5/6,8/9, 9/10
	DVB-C	Standard: J.83A(DVB-C), J.83B, J.83C Input Frequency: 30-960MHz Constellation: 16/32/64/128/256 QAM

Support Diseqc function (For DX902)

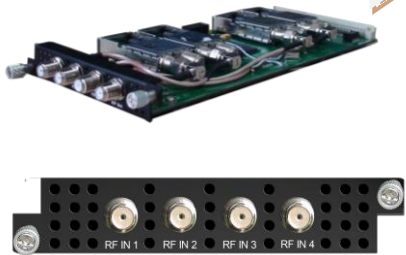
Multiplexing:

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 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)

4 FTA Tuner Module



DX904A/DX914A/DX944A

Module Specifications:

Stream in: 4 Tuner input, F Type
 Stream Out: 4* MPTS output over UDP/RTP, unicast/multicast, RJ45/SFP interface

Standard: DX904: DVB-S/S2; DX914: DVB-C; DX944: DVB-T/T2

	DVB-S	DVB-S2
Input Frequency:	950-2150MHz	950-2150MHz
Symbol Rate:	QPSK 1~45 Mpsps	QPSK/8PSK 1~45 Mpsps, 16APSK 1~45 Mpsps, 32APSK1~32 Mpsps <i>(16APSK&32APSK are optional as required)</i>
FEC Demodulation:	1/2, 2/3,3/4,5/6,7/8	1/2, 2/3,3/4,5/6,7/8,4/5,5/6,8/9, 9/10
Signal Strength:	-65 ~ -25dBm	

Support Diseqc function (For DX904)

DVB-C Standard: J.83A (DVB-C), J.83B, J.83C
 Input Frequency: 30-1000MHz
 Constellation: 16/32/64/128/256 QAM

DVB-T/T2: Standard: DVB-T/T2
 Input Frequency: 30 MHz~1000 MHz
 Bandwidth: 6M, 7M, 8M

Multiplexing:

Maximum PID Remapping: 256 input
 Function: PID remapping (automatically/ manually), Accurate PCR adjust

Equipment Specifications:

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