

HD Pro 10

Up/Down/Cross Converter



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Up-, Down- and Cross- conversion between common HD- and SD-signals

The unit accepts nearly any common HD or SD-format and converts it to nearly any format in the same framerate family.

Frame Synchronization & Timebase Correction

A full frame TBC feature is included with adjustable and flexible system timing using the analog genlock reference inputs.

Aspect Ratio Conversion

Converts aspect ratios with freely definable factors, zoom and pan/scan settings. Predefined Presets are available for conversion from/to 4:3, 16:9 and 14:9. WSS, VideoID, Video Indexing and AFD are supported.

Video In-/Outputs

The unit provides two HD/SD SDI inputs and two HD/SD SDI outputs. With option /AV, standard definition analog in- and outputs are added that support CVBS, Y/C and component video.

Video Noise Reduction

Powerful video noise reduction eliminates random video noise in luminance and chrominance components.

Detail Enhancement

Enhancement (aperture correction) allows crisp clear pictures.

Color Correction

The unit features an RGB color corrector. Black level, white level and gamma can be controlled independently.

Legalization

The unit features an RGB legalizer. Upper and lower limits can be controlled independently for each RGB color channel.

Gain, Amplitude and Color Control

The system includes a Proc Amp that gives full control of video gain, black level, hue (NTSC) and Y/C timing.

VBI and Test pattern generator

The unit features a test pattern generator and a configurable VBI-area. Test line insertion for online measurement of signal quality is supported.

Audio

The unit processes video signals as well as the associated audio data. The system supports the full set of 16 embedded audio channels and, additionally, provides the embedding / deembedding of four external analog or AES signals.

The delay of the audio channels can be adjusted independently. This is a powerful feature to deal with differences in the processing delay of video and audio and correct potential lip sync problems.

The following list of features illustrates the overall flexibility of the audio subsystem.

- support for all 4 SDI audio-groups (16 channels)
- embedding and deembedding of analog/AES audio signals, embedding also supports SPDIF
- delay adjustable from 4ms to 1023ms for each channel individually
- automatic delay correction
- level adjustable from $-\infty$ to +18 dB for each channel individually
- fully configurable routing matrix
- support for sampling rates of 32 / 44.1 / 48 kHz
- support for Dolby E

Timecode

- timecode generation and regeneration
- accepts VITC in all VBI lines with auto detection of lines or manual line selection
- accepts SMPTE RP188 and RP196 via SDI
- accepts LTC
- supports VITC, LTC, RP188 and RP196 timecode at output

Presets

In addition to the presets provided for several groups of functions, full panel presets are also supported. They allow storing and recall of complete panel setups. Presets can also be saved and recalled to/from a PC via the remote control software.

Remote Control

All functions can be controlled remotely. The unit features serial (RS232) and Ethernet interfaces. A MS Windows remote control software is included. It supports the SNMP option with the generation of traps as input or reference signal loss and various status queries. Additionally a GPI interface is included for System Integration.

Quality

XForm Systems is proud to manufacture high quality equipment for the demanding broadcast and studio facilities markets for a long time. Quality is paramount in our design and manufacturing facilities.

MS Windows based Remote Environment

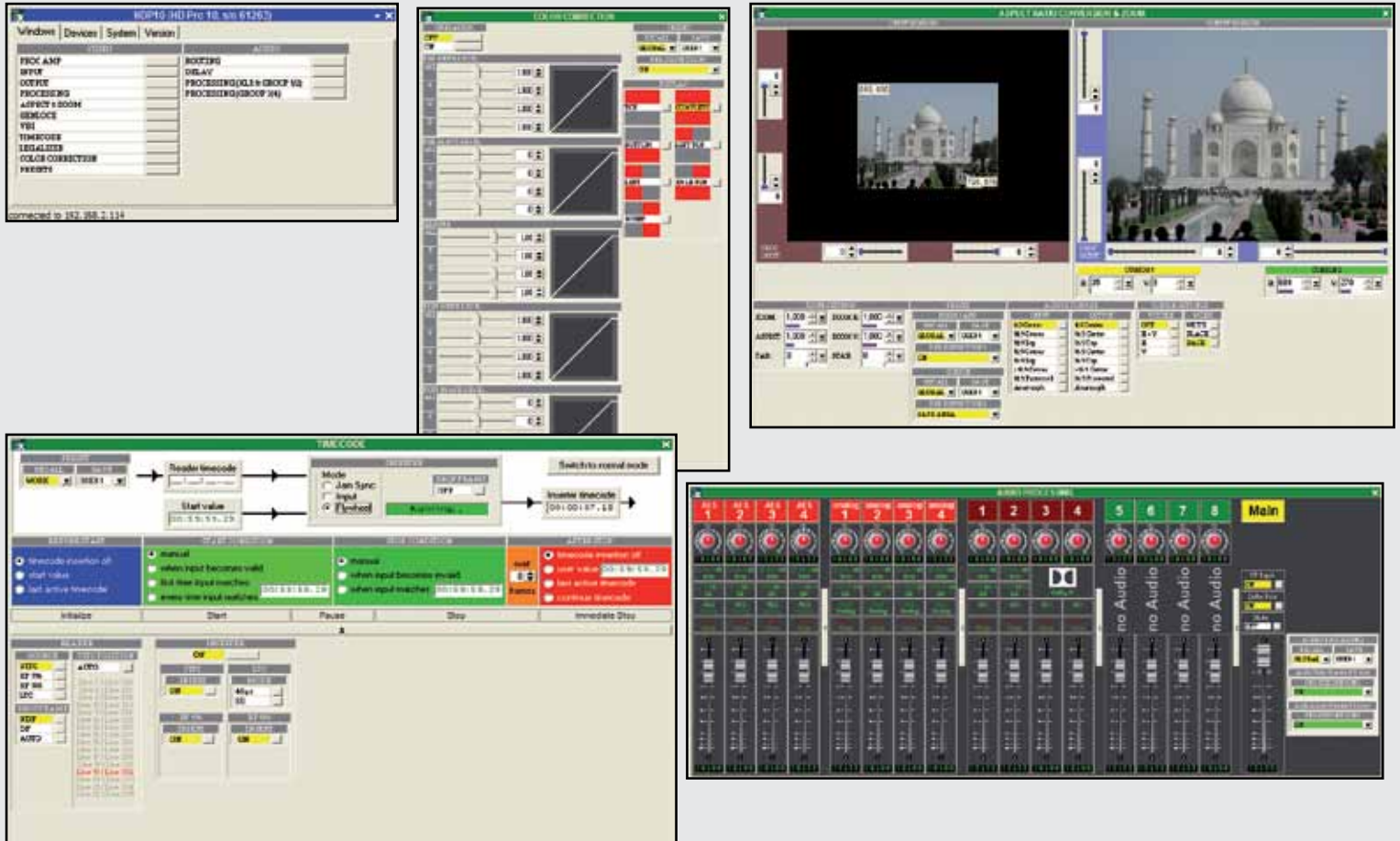
A remote control application for MS Windows based PCs is available. Every function of the unit can be controlled and monitored via the PC, especially those that are not accessible via the local control panel. A single PC can control multiple units.

The software allows to monitor the complete state of the unit in several windows, one for each group of functions, and provides a highly intuitive environment for the operation of the system.

System Requirements

A PC running MS Windows 7, MS Windows Vista, MS Windows XP or MS Windows 2000 with at least 500 MHz and 256 MByte of RAM.

The software needs 6 MB of disk space. A screen resolution of at least 1024 x 768 pixels with 64 k of colors is recommended. The communication with the unit is done via a RS232-port or Ethernet.



All Preset functions for the different groups of functions are concentrated by the Remote Environment in a single window. Presets can be named and saved to a file for documentation purposes and later recall. The timecode window allows the definition of timecode procedures with start condition, stop condition, jam sync and many other features. The input and output timecodes are monitored simultaneously in the remote or in the on screen display.

The remote environment contains a complete audio control for embedded and external audio. It supports the adjustment of level and delay for all channels independently and additionally includes a fully loaded routing matrix for flexible channel swap. The graphic control interface is especially helpful for the use of complex features as color correction, zoom, aspect etc. It assists the operator in a highly intuitive way and gives a quick and convenient overview of all parameters.

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Input Formats and Video Standards

HD/SD SDI Serial Digital Component, 10 Bit,
ITU BT.656 / SMPTE 259M (270 MBit),
SMPTE 292M (1.485 GBit)

Genlock Trilevel / SD blackburst input

Input Video Connectors

HD/SD SDI 2 x BNC
Genlock 2 x BNC dual / looping input

Output Formats and Video Standards

HD /SD SDI Serial Digital Component, 10 Bit,
ITU BT.656 / SMPTE 259M (270 MBit),
SMPTE 292M (1.485 GBit)

Output Video Connectors

HD/SD SDI 2 x BNC

Supported Conversion Formats

IN \ OUT	576i50 SD	480i59.94 SD	720p25	720p29.97	720p30	720p50	720p59.94	720p60	1035i59.94	1035i60	1080i50	1080i59.94	1080i60	1080psf23.98	1080psf24	1080psf25	1080psf29.97	1080psf30	1080p23.98	1080p24	1080p25	1080p29.97	1080p30	
576i50 SD	Green																							
480i59.94 SD	Green	Green																						
720p25			Green																					
720p29.97			Green	Green																				
720p30			Green	Green	Green																			
720p50			Green	Green	Green	Green																		
720p59.94			Green	Green	Green	Green	Green																	
720p60			Green	Green	Green	Green	Green	Green																
1035i59.94			Green	Green	Green	Green	Green	Green	Green															
1035i60			Green	Green	Green	Green	Green	Green	Green	Green														
1080i50											Green													
1080i59.94											Green	Green												
1080i60											Green	Green	Green											
1080psf23.98														Green										
1080psf24														Green	Green									
1080psf25														Green	Green	Green								
1080psf29.97														Green	Green	Green	Green							
1080psf30														Green	Green	Green	Green	Green						
1080p23.98																			Green					
1080p24																			Green	Green				
1080p25																			Green	Green	Green			
1080p29.97																			Green	Green	Green	Green		
1080p30																			Green	Green	Green	Green	Green	

Conversion possible
 Conversion not supported

Audio Processing

Audio Delay Time 4-1023ms
Audio Gain -∞ ... +18dB
Number of embedded channels: 16
Internal processing 32 Bit
support for Dolby E
channel swap via routing matrix
S/N Ratio > 90 dB
THD < 0.1%

Timecode

Formats supported: VITC, LTC, RP 196, RP 188
LTC In / Out BNC
LTC Format EBU or SMPTE
59.94Hz DropFrame and non-DropFrame

Video Processing

Quantizing Scheme 4:2:2 conforming to
ITU BT656, SMPTE 259M / SMPTE 292M
12 Bit Processing
Enhancement, Noise Reduction Y and C
Full Frame TBC
Aspect Ratio Conversion with variable Zoom H/V
RGB Legalizer
RGB Color Corrector

Remote Control

RS-232 Dsub9, 38400, 8N1
Ethernet RJ-45, 10/100BaseT
GPI Dsub15, 5 in, 4 out

Windows Control Software included

Power Requirements

AC Voltage 90-260V, 50 / 60 Hz
Power Consumption <60VA

Physical

Dimensions 44 x 483 x 367mm (H x W x D)
Weight 6 kg approx
Chassis 1RU 19" Rack mounting
Cooling Forced air – cross flow (side to side)
Temperature 0°C - 35°C (operation)
-20°C - 75°C (storage)
Humidity 10% - 90% non condensing

Option /AEB

Analog / AES Audio Embedding / Deembedding
Digital Audio AES or SPDIF (input)
AES (output)
32kHz / 44.1kHz / 48kHz
24 Bit
Analog Audio ADC/DAC Quantization 24 Bit
Sample Rate 48kHz
Headroom up to 25dBu
Analog In 4ch on one DB25 (balanced)
Digital In 4 x BNC
Analog Out 4ch on one DB25 (balanced)
Digital Out 4 x BNC

Option /AV

Input Formats and Video Standards

CVBS & Y/C PAL-B, PAL-M, PAL-N, PAL-60, NTSC,
NTSC-J, NTSC-4.43, SECAM
Sampling 27MHz, 12 Bit
YPbPr/RGB 525/625 N10, MII or Betacam, Sync on
Y/G or external, Sampling 27MHz, 12 Bit

Input Video Connectors

CVBS 2 x BNC – dual / looping input
Y/C 4 pin female S-Video connector
YPbPr/RGB 3 x BNC

Output Formats and Video Standards

CVBS & Y/C PAL-B, PAL-M, PAL-N, NTSC,
NTSC-J, NTSC-4.43, SECAM
Sampling 27MHz, 12 Bit
YPbPr/RGB 525 / 625 N10, MII or Betacam
Sync on Y/G, Sampling 27MHz, 12 Bit

Output Video Connectors

CVBS 2 x BNC
Y/C 4 pin female S-Video connector
YPbPr 3 x BNC

Option /ETS

SNMP Monitoring and Traps

Option /RP

Redundant Power Supply



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