

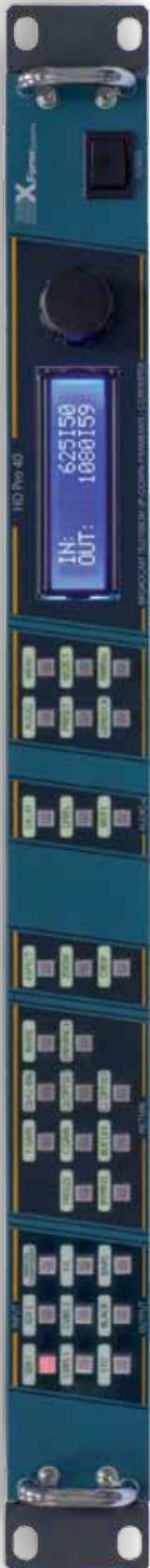
# HD Pro 40

Up/Down/Framerate- Converter



# HD Pro 40

## Up/Down/Framerate- Converter



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

The unit accepts nearly any common HD or SD-format and converts it to nearly any format including framerate conversion.

### 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

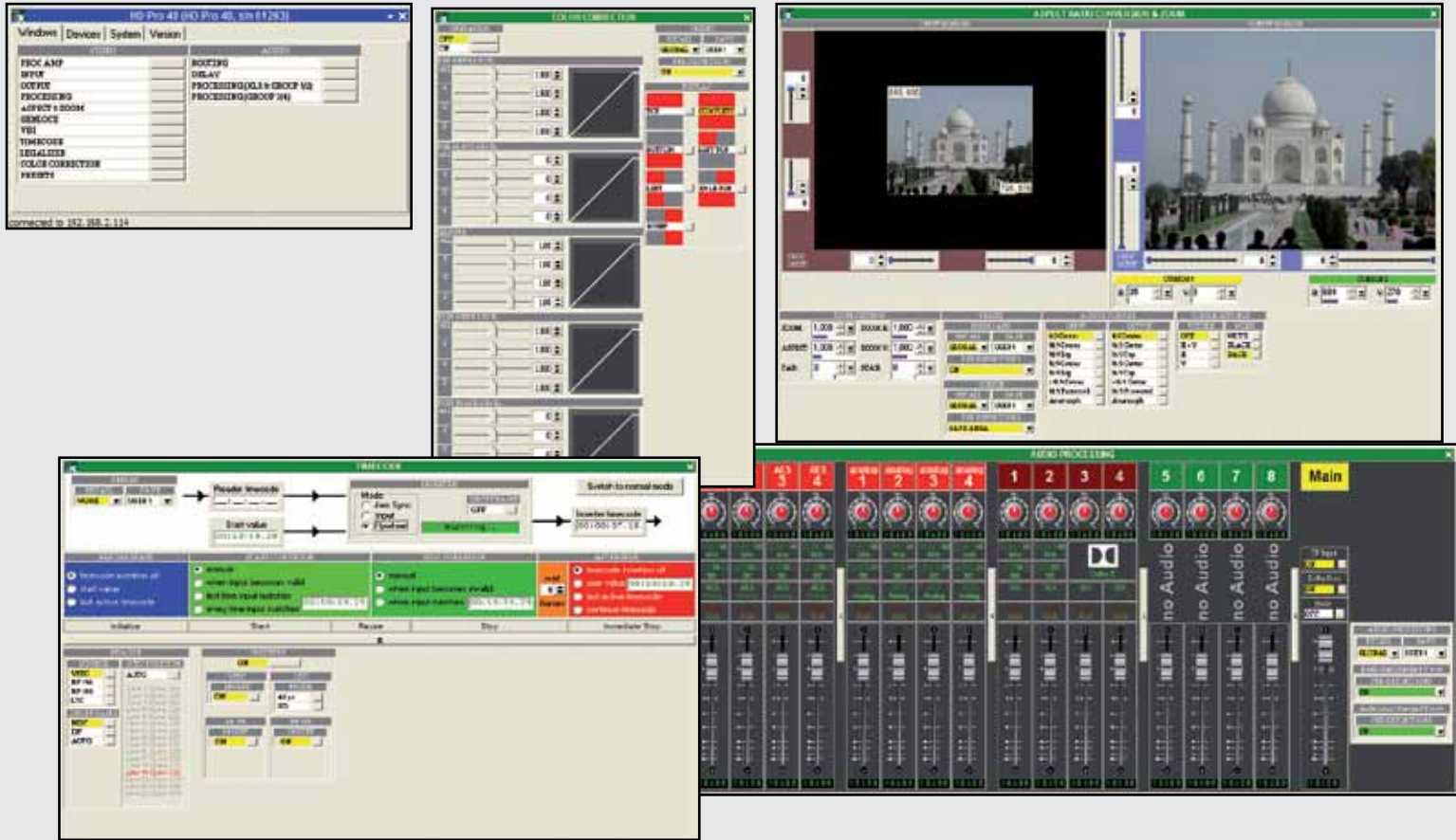
A remote control application for MS Windows based PCs is available. Every function of the unit can be controlled and monitored via the PC, especially those that are not accessible via the local control panel. A single PC can control multiple units.

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.

# HD Pro 40

## Up/Down/Framerate- Converter



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

Green Conversion possible  
Grey Conversion currently not supported

### Audio Processing

Audio Delay Time 4-1023ms  
Audio Gain -∞ ... +18dB  
Number of embedded channels: 16  
Internal processing 32 Bit  
channel swap via routing matrix  
support for Dolby E  
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  
Proprietary Linear Standards Conversion  
RGB Legalizer  
RGB Color Corrector

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### Power Requirements

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

### Remote Control

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

### 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 / 44.1 kHz / 48kHz  
24 Bit  
**Analog Audio** ADC/DAC Quantization 24 Bit  
Sample Rate 48kHz  
Headroom up to 25dBu  
4ch on one DB25 (balanced)  
**Analog In** 4 x BNC  
**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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