

- **Advanced motion-adaptive conversion**
- **Film detection for higher vertical resolution**
- **Sophisticated noise reduction system**
- **1080i, 720p & 480p60 formats**
- **Full 10-bit resolution (16-bit internal accuracy)**
- **Range of input and output formats**
- **High quality digital comb-filter decoder option**
- **Flexible architecture**
- **50Hz, 60Hz, 59.94Hz**
- **Aspect ratio conversion**
- **Built-in standards conversion capability**
- **Audio delay/resynchronization option**
- **Modular construction**

The Juno Upconverter (HDU-3800) offers a wide range of input and output formats condensed into 2RU. This compact case size has been achieved through the use of Application Specific Integrated Circuits (ASICs) and the latest high density programmable logic devices.

The Juno Upconverter architecture allows the input and output processing to be configured to exactly match the demands of the application. For the upconversion of composite video signals the HDU upconverter can offer reference quality 10-bit digital decoding. 10-bit serial digital and analog component inputs are also supported. In addition, the Juno Upconverter offers comprehensive image processing facilities, a highly sophisticated Noise Reduction System, an audio delay/resynchronization option and delay pulse output.

The conversion core is a high precision HDTV four-field by four-line processor employing internal 16-bit accuracy to retain full 10-bit resolution from input to output.

Motion Adaptive Upconversion and Standards Conversion

All products in the JUNO range feature advanced 10-bit motion adaptive conversion. This proprietary award-winning process, unique to Leitch, enhances vertical resolution while minimizing interface artifacts, reduces noise and offers improved decoding for composite sources.

Film Mode

For film originated material containing 3:2 sequences, a film mode of operation is selectable. This automatically detects the 3:2 sequence and ensures that the output is produced only from video frames having related fields. This process results in optimum vertical resolution.

Flexible I/O Capability

JUNO is available with interfacing and processing features designed to match the demands of the application. In addition to the standard models, JUNO can be customised configured with various combinations of interfaces and processing options. Signal input formats available include serial digital component, analog component (YPbPr and GBRS) and analog composite. Wherever composite interfaces are provided, multiple standards are supported (NTSC, PAL, PAL-M, PAL-N).

Wide Range of HDTV Standards

Signal output formats include:

serial digital	1.485 Gbit/sec
analog	YPbPr, RGBS
fibre optic	
	(@1080i, 720p or 480p60)

The flexible architecture of JUNO provides the capability to allow for future HD signal formats.



Highest Quality Decoding

JUNO offers a high performance, reference quality 10-bit decoder using Leitch's custom ASICs. For composite sources the quality of decoding is a critical aspect of the quality of upconversion. JUNO's 10-bit adaptive comb-filter decoder offers the cleanest possible transfer from the composite to component domain for NTSC, PAL, PAL-M and PAL-N feeds. The quality of processing offered by this decoder will satisfy the most demanding applications.

Image Enhancement/Aspect Ratio Conversion

JUNO includes a full range of digital processing controls to both correct and enhance the source material. JUNO can also offer picture resizing, positioning and aspect ratio conversion implemented using sophisticated digital FIR filters.

Comprehensive Noise Reduction Facilities

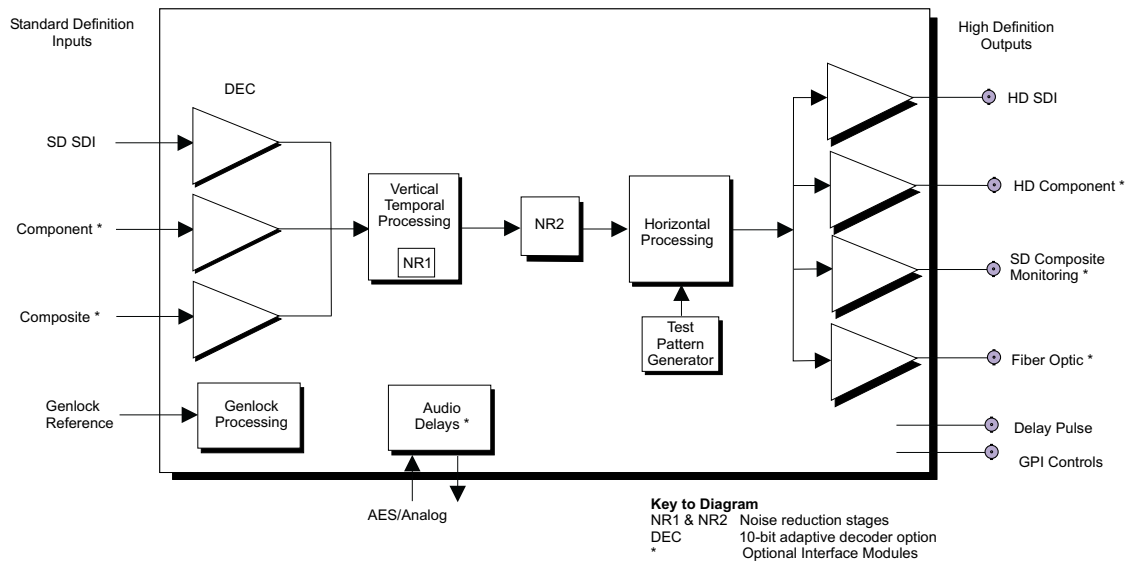
Two methods of noise reduction are available in JUNO. Within the motion adaptive core of the converter, significant Noise Reduction is achieved via proprietary techniques during the conversion process. An additional process is provided to give recursive noise filtering.

Audio Delay

Audio delay options are available for JUNO, allowing audio (up to 4 AES or analog equivalent) to be matched to the delay in the video path. Additionally, a TTL output pulse is provided for control of external audio delay units.

Redundant Power Supply

For those "on air" applications requiring minimal risk of interruption, a redundant dual power supply is available. This unit occupies a 1RU slot and houses dual hot pluggable power supplies accessible from the front of the unit. These are configured to power share in normal operation. LED's visible from the front of the unit provide indication of PU module failure and GPI's are provided to indicate failure of either one or both supplies. Additionally, there is an over temperature alarm GPI. Existing upconverters can be upgraded to operate with this unit.



SPECIFICATIONS

Specifications and designs are subject to change without notice

General/Signal Processing

Features

- Motion adaptive conversion
- 4-field x 4-line aperture
- 10-bit I/O
- 16-bit internal accuracy
- Detail enhance (H & V)
- Black level
- Frame/chroma retiming (H & V)
- Noise Reduction
- Color balance (Cb/Cr)
- Test pattern generator
- Video/chroma gain
- Freeze & fade/cut to black

SDTV Inputs

- SDI 270MHz (SMPTE 259M)
- Analog component (SMPTE/EBU N10) 50, 59.94 or 60Hz
- Analog composite NTSC (SMPTE 170M), PAL, PAL-M, PAL-N

HDTV Output Options

- 1.485GHz SDI (SMPTE 292M)
- Analog component (SMPTE 240M, 274M, 296M)
- 1920 x 1080 60/59.94Hz -i
- 1280 x 720 60/59.94Hz -p
- (Additional standards available - information available on request)

Facilities

- Vertical & horizontal resizing, positioning and blanking
- Vertical & horizontal aperture correction
- Auto/manual motion adaption threshold adjustment
- Noise reduction control
- Proc. amp. controls
- Test patterns select
- Aspect ratio conversion
- Film mode

Additional I/O Facilities

- Aux. control port (RS232)
- GPIs
- DigiNet interface

Options

- Audio Delay
- Key channel unit

Physical and Electrical

- Dimensions 2RU, 19" rack mountable chassis
- AC (auto ranging) 240W (approx.)
- Cooling side to side forced air



ORDERING INFORMATION

HDU-3800	Juno HDTV Upconverter, switch-selectable operation between 720p and 1080i, Serial Digital Input (270Mb/s) / Serial Digital Output (1.5Gb/s), with film (3/2) auto-detection, motion-adaptive conversion
HDU-3800-1080i	Juno HDTV 1080i Upconverter, Serial Digital Input (270Mb/s) / Serial Digital Output (1.5Gb/s), with film (3/2) auto-detection, motion-adaptive conversion
HDU-3801	Juno HDTV Upconverter, switch-selectable operation between 720p and 1080i, Serial Digital Input (270Mb/s) / Serial Digital Output (1.5Gb/s), with film (3/2) auto-detection, motion-adaptive conversion, dual power supply, 3RU
HDU-3801-1080i	Juno HDTV 1080i Upconverter, Serial Digital Input (270Mb/s) / Serial Digital Output (1.5Gb/s), with film (3/2) auto-detection, motion-adaptive conversion, dual power supply, 3RU
3801PS	Spare power supply module.
Input Options	
3800CI	HDTV Upconverter Component Input module (RGB/YUV)
3800HB	HDTV Upconverter high-quality Composite Input Decoder
3800SI	HDTV Upconverter Additional Serial Input (maximum 4 per frame)
Output Options	
3800CO-1	HDTV Upconverter 720p or 1080i Component Output (RGB/YUV)
3800SO-F4	HDTV Upconverter Fiber Output (1310nm, high power) module
3800SO-F6	HDTV Upconverter Fiber Output (1550nm) module
Audio Delay Option	
3800AD	HDTV Upconverter Audio Delay (requires 1 available input slot)
720p Upgrade Kit	
3800XC	Juno HDTV Upconverter (HDU-3800-1080i) Upgrade, upgrades unit to switch-selectable operation between 720p and 1080i

Dual Power Supply Upgrade Kit

HDU-PSU-UG Factory upgrade to dual power supply for HDU-3800 and HDU-3800-1080i