

X75™ HD X75™ SD

Multiple Path Converter,
Synchronizer...and More



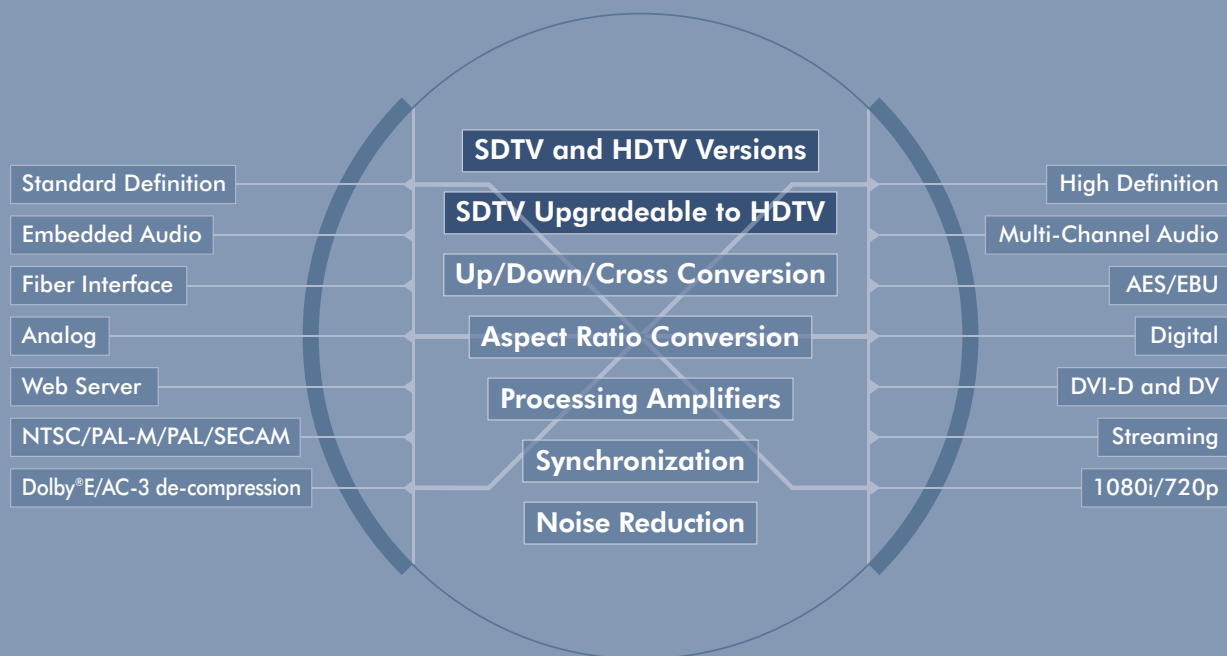
King of Processors

[X75™HD/X75™SD] Does More With Less Equipment

Why Select an X75HD/SD?

High definition is becoming more and more prevalent, with the increasing popularity of wide screen and surround sound in home theatre environments. As broadcast facilities move toward a fully digital or hybrid environment supporting both standard- and high-definition formats, content processing requirements increase significantly, as does the demand for more functionality in less space.

X75 Feature Map



Customers' Evolving Functionality Requirements Include:

- Up, down, cross and aspect ratio conversion with synchronization
- Advanced audio processing – for discrete analog, discrete digital AES, digital AES (compressed), and embedded audio uncompressed and compressed, which may require increased video delay for proper lip sync
- Multi-channel audio required for surround sound and multiple language applications
- SNMP (Simple Network Management Protocol) has become an important requirement in the television industry
- The ability to take legacy analog signals into the digital domain using the highest quality conversions — especially before up-converting and compressing video signals
- Interfaces for high definition including optical fiber and DVI-D
 - Optical fiber is required for long cable runs (>100m / 300ft.)
 - DVI is popular as an interface into LCD and plasma-type picture displays
- Intelligent input processing for alarming and auto-switchover — reducing downtime
- Increased use of metadata:
 - In today's facilities, there are many forms of "data about the essence" (or metadata) that travel along with the video and audio signals
 - Requirements vary — a transparent metadata pass-through may be required or a requirement to modify or replace the metadata.

It's the Right Choice for Transitioning to Digital and HDTV

Combining HD and SD frame sync, video and audio processing capabilities and up/down/cross conversion, all in a space-saving 1RU package, the X75 is the most comprehensive and versatile solution for broadcasters making the transition to DTV and HDTV.

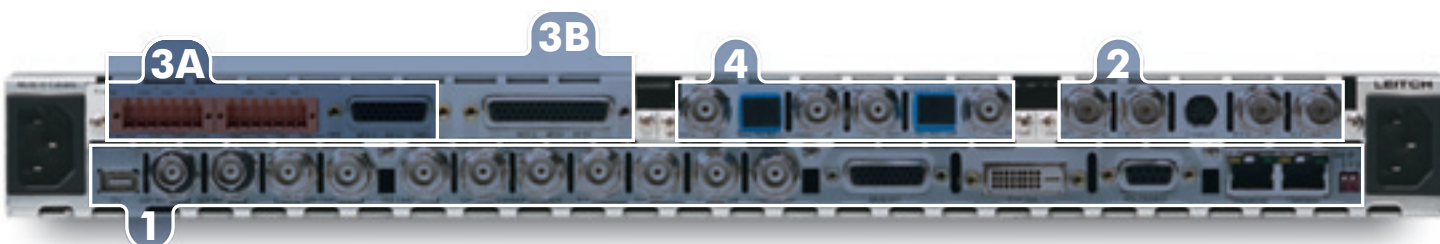
More Than Just a Synchronizer — More Functionality, Less Equipment

- AV synchronizer for analog and digital SDTV with simple upgrade for HDTV
- Analog-to-digital and digital-to-analog video conversion
- Up, cross and down-conversion with aspect ratio conversion
- Analog video processor with auto-switch time base corrector
- Auto-sensing, multi-standard (PAL-B, PAL-M, NTSC/SECAM) for worldwide use
- Digital noise reduction for SDTV and HDTV
- Video level/color controls
- Optional PQM (Phase Quadrature Modulation) or A3D (Adaptive 3-Dimensional) color decoding
- Closed-captioned processing
- Video and Audio Test Signal Generators
- Audio embedding/de-embedding for both SDI and HD-SDI serial digital signals
- 8- or 16-channel audio processing (4 or 8 stereo pairs)
- Integrated Dolby® E and AC-3 decompression option
- Analog-to-digital and digital-to-analog audio conversion
- Surround sound audio processing
- Audio level control
- Audio limiter option
- Simple voice-over
- Redundant power supplies

SDTV to HDTV Upgradeability

The X75 is fully upgradeable from standard definition to high definition in the field.

1. You can start out with a dual SDI frame synchronizer with analog composite (NTSC, PAL-B, PAL-M, SECAM) outputs. This combination is ideal for today's digital systems for standard-definition video processing.
2. For those who require analog video inputs there are two choices: the A3D (Adaptive 3-Dimensional) and the PQM (Phase Quadrature Modulation) versions. Both optional video input versions include analog composite, Betacam® and S-Video inputs.
3. If audio processing is required, there are two options to choose from:
 - a) The first is an 8-channel audio synchronizer with four-channel analog (two stereo pairs) and two AES inputs and outputs for typical stereo program processing.
 - b) The second audio option is a 16-channel audio synchronizer with four-channel analog (two stereo pairs) and five AES inputs and outputs, allowing even more audio capability for multiple language or surround sound applications and our optional integrated audio de-compressor for Dolby® E and AC-3 can be added.
4. Then when high definition is required, you can upgrade to HD-SDI coaxial and fiber inputs and outputs with up, down and cross conversion by installing an X75OPT-UPG module.



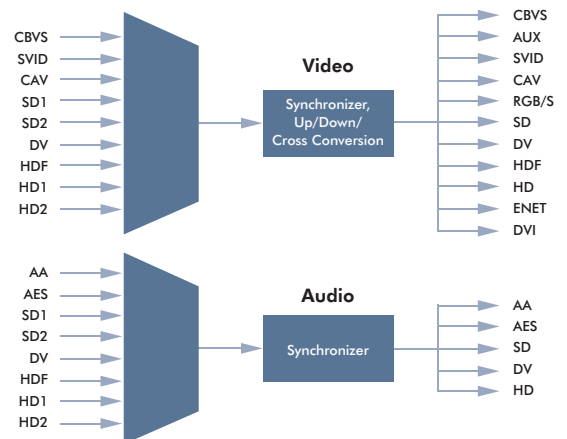
[X75HD/X75SD]

Select Anything In to Everything Out

Infinitely flexible I/O input options for the X75 with the HD upgrade provide up, down and cross-conversion from up to seven input video formats — more than any similar product currently on the market — to almost any output video format. Additionally, the X75 features auto-detection of inputs with auto-changeover and user-selectable alarms to reduce downtime.

Video input format options include HDTV optical fiber, HD-SDI, analog composite/component (Betacam®) and Y/C (S-VHS/Hi-8) inputs. Dual SDI inputs are included. **Ten broadcast-quality outputs** of the same signals are provided, as well as RGBS, DVI-D, auxiliary PAL-B/PAL-M/SECAM/NTSC composite video outputs, and optional streaming video and audio over Ethernet.

The X75 front panel allows quick selection between multiple input devices all simultaneously linked through separate connections for each video input and output format.

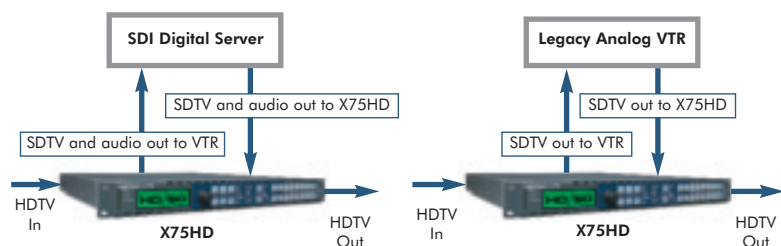


The X75 is designed to convert from one video format to another and from one audio format to another. Both the audio and the video signals are synchronized to the input genlock reference signal. Video and audio adjustments can be carried out on the input signals. (HD version shown.)

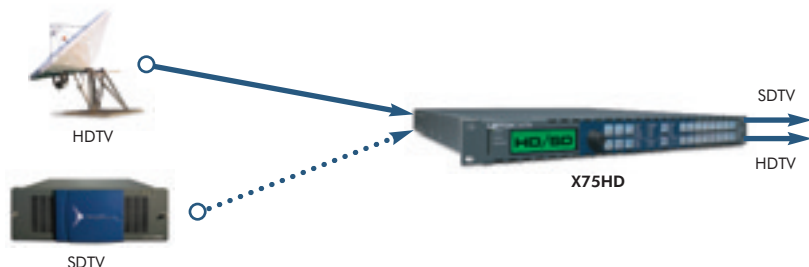
M-PATH™ Multiple Path Processing Supports Bi-Directional Processing

The HDTV upgrade enables the following functionality. Leitch's exclusive M-PATH™ feature provides multiple directional connectivity between analog, digital and high-definition tape transports or routing systems. Enabling simultaneous converter and frame synchronizer operation, M-PATH mode routes HDTV optical fiber or HD-SDI and converts and synchronizes directly to the SDTV analog and SDI video outputs, which feed the inputs of analog composite and component and digital tape machines and routing systems. The analog or digital outputs of tape machines or routing systems can be simultaneously connected to one of the synchronizer's SDTV analog or digital inputs where it can be processed and output via the HDTV optical fiber and HD-SDI port. Audio signals are handled in a similar fashion, with eight or sixteen channels of processing in each direction. Analog (two stereo pairs), AES/EBU (two or five inputs and two or five outputs) and embedded HD-SDI and SDI audio are also supported.

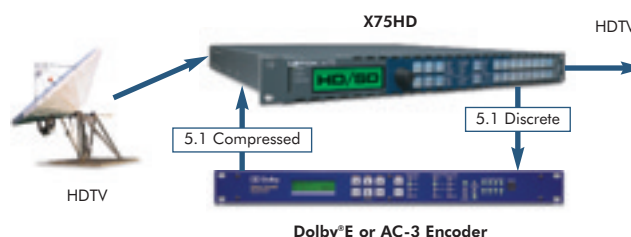
M-PATH — Simultaneous UP and DOWN Conversion Example



Simulcast — Switching Between SD/HD with SD and HD Output



Compressed/Embedded Audio — Audio Processing for Discrete Embedded and Compressed Audio

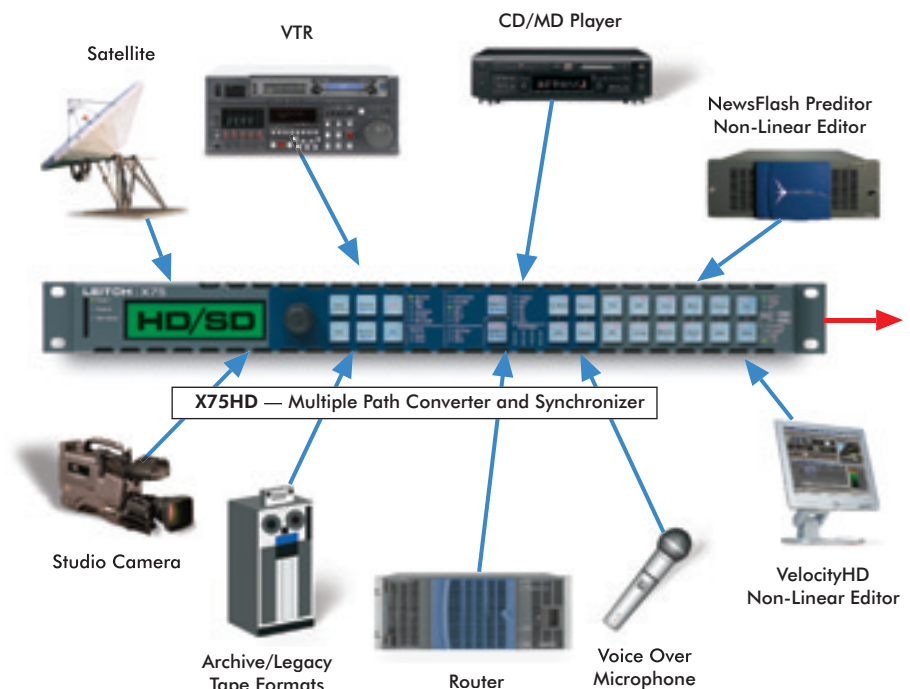


Limitless Applications

Expanding video processing to include “anything in” to “everything out” and M-PATH multiple path and simulcast conversions, Leitch’s new X75 is equally suited for use in analog, digital, or high-definition hybrid facilities.

The X75 Provides a Simple Solution for Even the Most Complex Applications

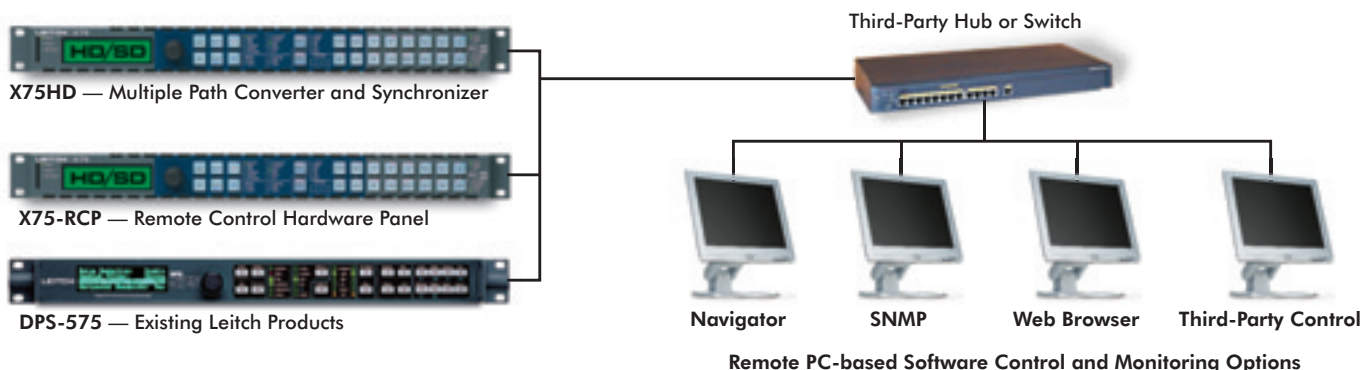
For production and editing, the X75 provides conversion to and from any signal type for HDTV productions. In news environments, it can time base correct any tape format — analog, digital or HDTV. For broadcast, the X75 can perform up-conversion for HD output, down-conversion for monitoring/logging, and cross-conversion for programs that are recorded in other than the native format for the station. As a simple switcher, the X75 can switch between any two inputs. In mobile environments, the X75’s fast operator controls provide automatic input select to the proper HD output format, making the X75 an easy choice for live events.



Effortless Control

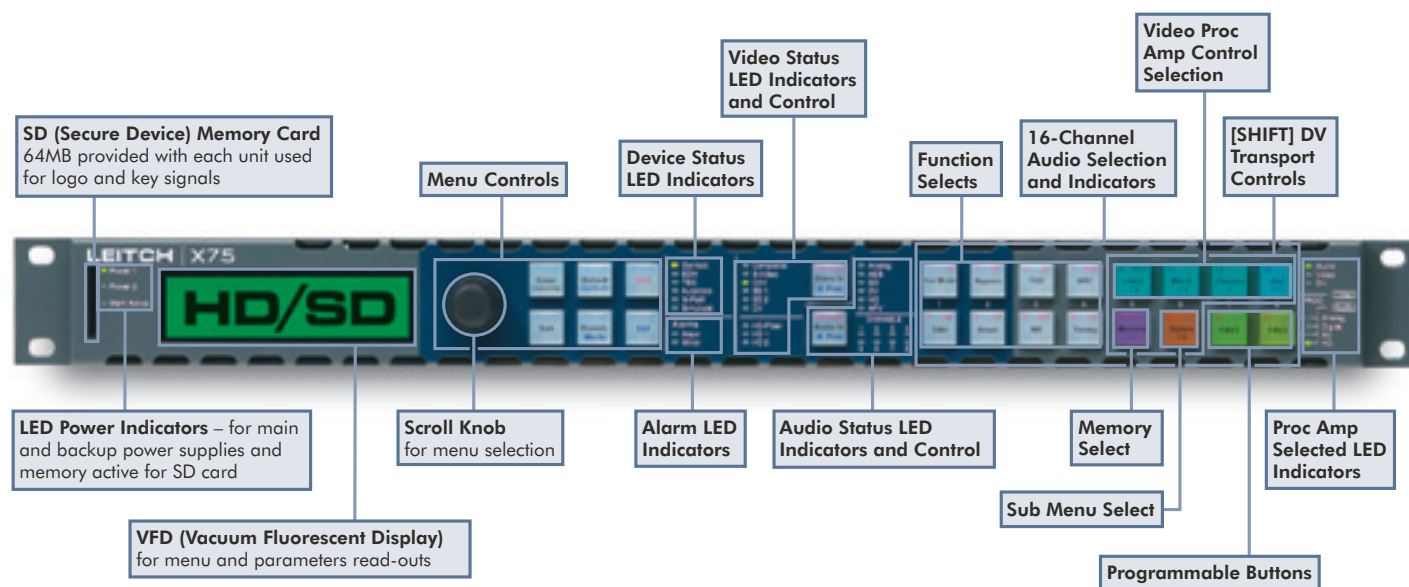
Control and monitoring of signals passing through the X75 is enabled using IP over Ethernet, and instant operator control from the local or remote control panels allows for easy manipulation of video and audio signals. Using two Ethernet ports per unit (one for control, monitoring and video thumbnails, and one for video and audio streaming) makes PC control and monitoring over large networks

entirely manageable. A built-in Web Server and optional SNMP (Simple Network Management Protocol) are industry-standard means of controlling and monitoring the X75 over Ethernet. Leitch’s CCS Command and Control System Navigator software further enhances the remote control aspects of the X75 for any application.



[X75HD/X75SD]

Front Panel (or Remote Panel) Controls and Indicators



eXpanded Audio Capability

With the addition of an optional eight- or sixteen-channel audio synchronizer module, the X75 can provide either four stereo or eight stereo audio channels and video synchronization, supporting analog, AES/EBU digital and embedded SDI and HD-SDI audio I/O, including Dolby®E and AC-3 decompression. All outputs are simultaneously active, which allows both analog and digital audio devices to be connected at the same time. Incoming stereo audio pairs can be selected from the analog, digital or embedded SDI or HD-SDI inputs. All audio channels dynamically track the internal delay of the video synchronizers, whenever auto-track mode is enabled. Video and audio delay can be specified, ensuring proper lip sync regardless of the program source. All audio parameters are controlled from an easy-to-use front panel menu. Four separate audio tone generators enable different frequency test tones to be applied to each channel for easy left/right channel identification. The optional Audio Limiter feature will provide improved audio output performance by limiting the hard clip effect and preventing audio distortion. Integrated Dolby®E and Dolby® Digital decompression can be added on as an option bringing even more functionality. When using the 16-channel audio option, five AES inputs and outputs facilitate the use of external audio codecs simultaneously. This is ideal for all broadcasters, post production facilities, cable companies, Telcos and many other applications requiring added audio control.

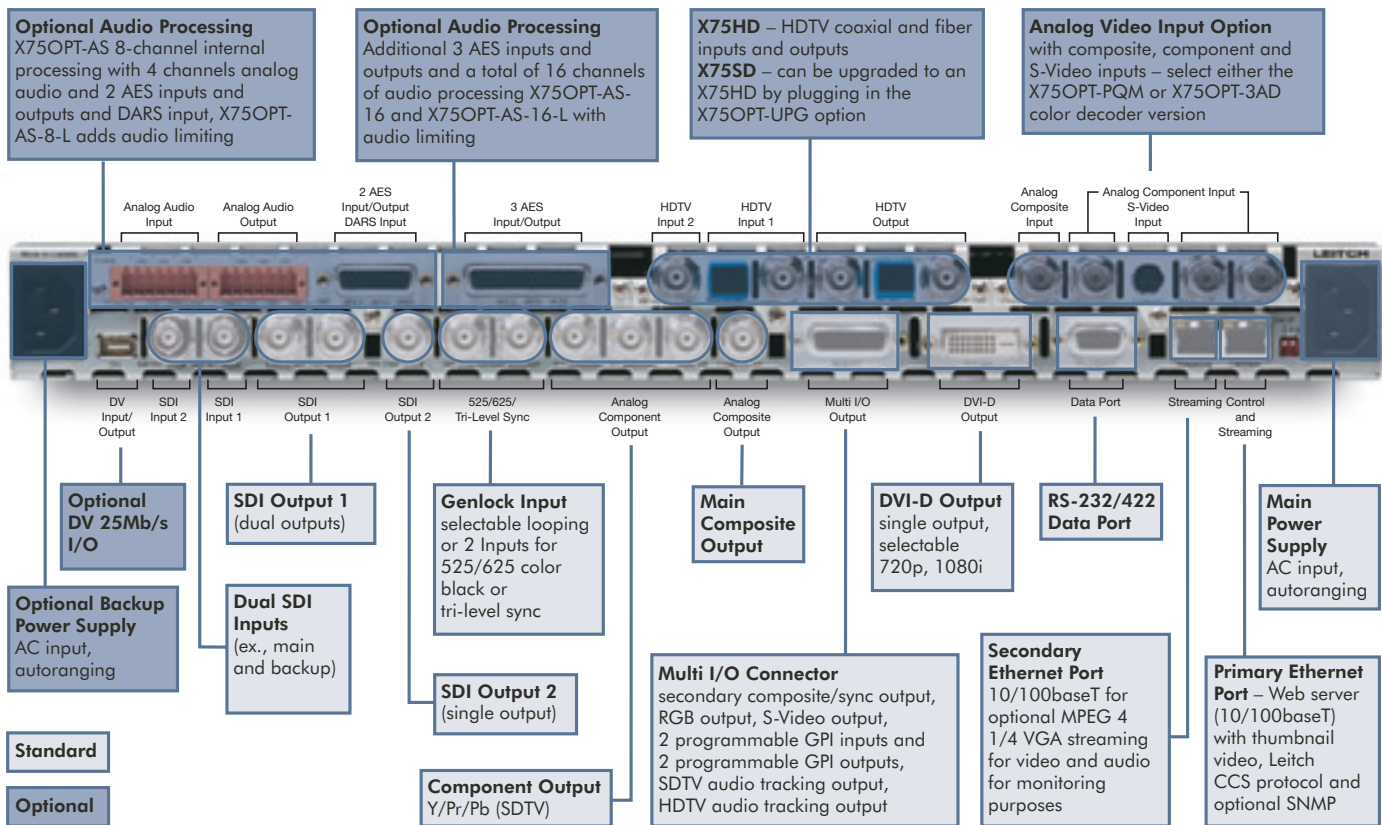
Analog Video is Still Here for Awhile

All X75 models support analog video outputs. Composite (main and auxiliary), component Betacam® and RGB and S-Video are built-in. For those who wish to convert analog composite to digital SDTV or HDTV, the most critical requirement for a component digital synchronizer is the ability to accurately decode composite NTSC and PAL signals. In that respect, the "A3D" optional 12-bit adaptive 3-dimensional comb filter decoder used in the X75 offers unparalleled decoding ability. For those looking for a more cost-effective solution, the "PQM" version is available. Three combing modes are available for the "A3D" and "PQM": Simple, Adaptive 2-dimensional and Adaptive 3-dimensional. Utilizing Leitch's Adaptive 3-D Comb Filter Decoder Technology, the 3D Combing virtually eliminates residual subcarrier artifacts, such as cross luminance and cross chrominance.

PAL-M and SECAM Capability for Worldwide Use

Digital SDI and HD-SDI signals can be processed to PAL-M and SECAM outputs. Either of the analog video input options provides PAL-M and SECAM processing to all analog, digital and HDTV outputs.

Back Panel Connectivity



3-Dimensional SDTV Digital Noise Reduction

With the optional Digital Noise Reduction feature, convenient front panel controls permit adjustments for impulse noise reduction, Gaussian random noise reduction, compression blocky-ness and mosquito artifact reduction, and sharpening and softening of images. Particularly effective for the reduction of satellite noise, the impulse noise reducer automatically detects impulse noise and applies the median filter when necessary. The recursive 3D directional filter removes Gaussian noise and compression artifacts, which include blocking artifacts and mosquito noise. The directional softening/sharpening filter can be used in various applications. For example, the softening filter can be used as compression pre-filter to reduce mosquito noise. The sharpening filter can be used to enhance picture appearance. For MPEG pre-processing applications, this option provides entropy reduction prior to encoding.

Closed-Captioning Capabilities

Another unique feature broadcasters will appreciate is programmable, line-by-line, vertical interval bypass for analog, digital and HDTV signals. Closed Captioning (CC) in SDTV (EIA-608) on line 21 is transcoded to EIA-708 on line 9 in HDTV when upconverting. Alternately, HDTV CC is transcoded to SDTV during down-conversion.

Testing, Testing

The X75 supports video test signals for analog and digital. If the high-definition upgrade is installed, high-definition video test signals are supported. If one of the audio options is installed, analog, digital (AES) and embedded test signals are supported. An option to facilitate timing of video and audio for an X75 in a local location is provided by video-to-audio timing information sent from an X75 in a remote location. This test provides a video-to-audio timing measurement so that the operator can adjust lip sync without guessing.

Designed for a Changing World

With firmware updates easily installed in the field, the X75 is able to stand the test of challenging times, making it a solid investment for a transitioning market.

Engineered for the Real World

The rugged, yet lightweight chassis is ideal for mobile use. The all-metal front panel provides expanded function buttons and additional status LEDs. A vacuum fluorescent graphical display (VFD) features variable sized fonts for readability and can be dimmed to suit control room lighting conditions.

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About Leitch

Leitch Technology is a 34-year global leader in the design and distribution of high-performance video systems for the professional television industry. Leitch offers products and systems that enable operations of any size to streamline workflow, achieving a truly Integrated Content Environment for content production, processing, transmission, management and test and measurement. With a sole focus on and commitment to the television industry, Leitch provides premium customer support.

Standard Warranty

With every Leitch product, you'll receive a set of standard warranty services, backed by the manufacturer, which includes 9x5 technical phone support, After-Hour "Emergency" Support, 5-day Advance Exchange of Parts, Software Updates & Bug Fixes and Access to Technical Knowledge Bank. To maximize your product warranty, you can continue warranty services with a Basic Service package or upgrade your services to a Gold Service package, which includes 24x7 technical phone support and Next-day Advance Exchange of Parts for up to five additional years of coverage.

Professional Services

At Leitch, we take our Professional Services business extremely seriously, offering integrated support solutions designed to help with every phase of your business. Our extensive service portfolio features Startup Services, including ReadyConfiguration Setup Services, QuickStart Commissioning and 90-day Elite Services; Operation Services, including Preventive Tracker, Educational/Training Program and RemoteLinx Monitoring Services; and Long-Term ServicePAKs, including Basic ServicePAK, Gold ServicePAK and Site ServicePAK.

At Leitch, we are committed to customer service excellence and strive to provide the highest level of support in the industry.

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