

IN1404XT

VIDEO / RGB SCALER WITH SEAMLESS SWITCHING AND TWISTED PAIR OUTPUT

FEATURES

- **Superb Video Scaling with Advanced Motion Compensation and Inverse 3:2 Pull-down for Film-Originated Video Material**
- **Twisted Pair Output** — Send the Scaled Video Signal Up to 500' over Low Cost CAT5 UTP Cable
- **Seamless Switching**
- **Audio Breakaway**
- **Quad Standard Video Decoder with Adaptive Comb Filter**
- **High Quality RGB Upscaling for Computer Video Signals**
- **4-Input A/V Switching Capability:**
Inputs 1 & 2 Accept Composite Video or S-Video;
Inputs 3 & 4 are Universal and Accept Composite, S-Video, Component Video, Progressive Component Video, RGBS, RGBHV
Input 4 also Accepts Passive Computer Video
- **Selectable Output Resolutions:** 640 x 480 up to 1365 x 1024
- **Selectable Output Refresh Rate:** 60 to 120 Hz
- **Comprehensive Video Adjustments:** Brightness, Contrast, Gamma, Hue, Saturation, Sharpness, Noise Filter, Image Size, Image Shift
- **Aspect Ratio Controls** Provide Proper Image Geometry with Various Input Source Aspect Ratios and Display Device Aspect Ratios.
- **Digital Freeze Frame** for Video and Computer Video Sources
- **All Adjustments Controllable Using On-Screen Menus or RS-232 Serial Control**



The IN1404XT is a full featured video scaler that combines digital video decoding, advanced video scaling, computer video scaling and a 4-input A/V switcher into a single product. The IN1404XT (eXtended Technology) builds on the capabilities of the popular IN1404 scaler, offering three new features:

1 Twisted Pair Output
In addition to its regular 5-BNC and 15-pin HD outputs, the IN1404XT also includes a CAT5 output that lets users send the output video signal up to 500 feet / 152 meters over a single low-cost CAT5 video cable. The IN1404XT works in conjunction with the VTR001CM, a compact CAT5 receiver that installs at the remote display location (VTR001CM must be ordered separately). The CAT5 output is ideal for large venue staging applications, houses of worship, overflow facilities and any other application that requires a lengthy cable run.

2 Seamless Switching
The IN1404XT provides a seamless cut between inputs when switching between a passive computer input signal on Input 4 and a composite, s-video, component, or progressive component video signal connected to input 1, 2 or 3. The scaler also provides a seamless switch between an active scaled RGB computer video signal connected to Input 3 and a passive RGB computer Video signal connected to input 4.

3 Audio Breakaway
The default operation is audio-follow-video switching. For special applications, the IN1404XT allows the video and audio input selection to be controlled independently using RS-232 serial commands.

Superb Video Scaling Technology
Employing sophisticated video de-interlacing, scaling, and filtering techniques, the IN1404XT offers an output signal with superb image detail that is entirely free of visible scan lines. Featuring inverse 3:2 pull-down for film-originated sources, the scaler automatically senses the type of input source material and selects the optimal motion compensation formula to eliminate motion artifacts in the output image. The IN1404XT employs high bandwidth digital signal processing and high speed digital to analog conversion, combined with effective filtering and sharpness circuitry to maintain and enhance image detail, even at the highest output resolutions.

Advanced Quad Standard Video Decoder
A high quality video decoder in the IN1404XT provides accurate video decoding for composite video, and S-Video signals in the NTSC, PAL, SECAM and NTSC 4.43 video standards. The video decoder employs an advanced 3-line adaptive comb filter for composite video input

signals that greatly reduces cross-color interference and hanging dots while maintaining maximum image bandwidth and detail.

Pick the Perfect Resolution
The IN1404XT offers a wide range of output resolutions to match the optimum or native resolution of virtually any display device. The IN1404XT provides a progressive scan output signal at standard VGA resolutions and refresh rates, ensuring optimal compatibility and exceptional image quality with a wide range of CRT, LCD, DMD, D-ILA / LCOS, and plasma display devices.

Selectable Refresh Rate
The IN1404XT output vertical refresh rate is adjustable from 60Hz to 120Hz. By converting PAL (50Hz) and NTSC (60Hz) input signals to higher, more ergonomic refresh rates, the IN1404XT makes it possible to display a remarkably solid, flicker-free image when using CRT monitors and projectors. Since the unit converts 50 Hz PAL and SECAM input signals to higher refresh rates with standard VGA timings, this provides enhanced compatibility with virtually all data display devices. The chart on the next page indicates the output resolutions and refresh rates available on the IN1404XT.

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4-Input Video / Audio Switcher

The IN1404XT provides remarkable input flexibility to accommodate video signals in all popular formats. Input 1 and Input 2 can accept composite video or S-Video. Input 3 and Input 4 are universal inputs that provide video scaling for NTSC / PAL / SECAM signals in any of the following formats: composite video, S-Video, component video, progressive component video, RGBS, or RGBHV. Input 4 can also be set as a passive input that allows a computer video signal to be connected and routed passively to the output. Stereo audio-follow-video switching is provided for all four inputs.

Progressive Component Video Scaling

The IN1404XT can provide high quality upscaling and refresh rate conversion for 480p progressive component video signals from DVD players, HDTV set-top decoders and broadcast grade DV decks that feature a progressive component video output.

Advanced RGB Signal Upscaling

The IN1404XT provides the same advanced RGB scaling capability as the IN1401 RGB scaler. Input 3 and Input 4 can accept 640x480, 800x600 and 1024x768 computer video signals at scan rates from 15 – 60 KHz and provide upscaling and refresh rate conversion to multiple resolutions and refresh rates.

Volume Control and Mute

Volume Control and Mute can be controlled from the front panel or using RS-232 serial commands. Unique volume levels can be saved for each input and automatically recalled each time an input is selected.

Video Blank

Located adjacent to the input selector buttons, the Blank Button allows the video image to be blanked. When Blank is engaged, the output signal goes to black but the sync signals continue, ensuring that the data display device retains sync lock. When the Blank button is pressed again, the previously selected input is again displayed. The Blank feature can also be engaged or disengaged using an RS-232 serial command. Video blank is functional for all scaled input signals (video or computer). It has no effect for input 4 when set for passive mode.

Digital Freeze Frame

provides a high quality still image, useful for applications that require close examination of a specific video frame. Freeze Frame can be enabled / disabled using the front panel Freeze Button or using an RS-232 serial command. Freeze is functional for all inputs when scaling video or computer video signals. Freeze frame is not functional for input 4 when set for passive mode.

On Screen Menus

provide easy control over video adjustments including hue, color, contrast, brightness, gamma, sharpness, image size, image position, and edge blanking. Unique image settings can be optimized and stored for each input. Each time an input is selected all image settings stored for that input are automatically recalled. The on screen menus also make it easy to verify and adjust advanced settings such as output signal resolution / refresh rate / sync format, RS-232 control options and reset to factory defaults.

128 Input Memories

are provided to store unique input settings for up to 128 different sources. The IN1404XT input capability can easily be expanded by using a matrix switcher such as the IN3808 or MSX1616 before the IN1404XT. The matrix switcher selects the desired input and sends RS-232 serial commands to the IN1404XT indicating which input to select and which input memory to recall.

Image Size, Position and Aspect Ratio Controls

with individual horizontal and vertical image adjustments make it easy to precisely fit the active video image to the display area. Comprehensive aspect ratio controls adjust the vertical and horizontal image size to accommodate various input signal and display device aspect ratios. The Anamorphic aspect ratio mode provides vertical image squeezing and lets users take full advantage of the superior image quality offered on anamorphically enhanced DVDs.

RS-232 Serial Control

RS-232 Serial Control is provided for all scaler functions including input selection, image adjustments and output settings. The IN1404XT's comprehensive RS-232 control capability facilitates complete system integration and effortless control when combined with a third-party control system.

Dual Outputs + CAT 5 Output

The IN1404XT features a 5-BNC output, a 15-Pin HD output plus an RJ45 female CAT5 UTP output. Since all three outputs are active simultaneously, the IN1404XT can provide signal to three separate displays.

Rack Mountable

The IN1404XT can be mounted in a 1U rack space using the rack ears provided.

1404XT OUTPUT MODES			REFRESH RATE (Hz)								
RESOLUTION	MODE	ASPECT RATIO	56	60	65	72	75	85	96	100	120
640 x 480	VGA	4:3		✓	✓	✓	✓	✓	✓	✓	✓
800 x 600	SVGA	4:3			✓	✓	✓	✓	✓	✓	✓
852 x 480	HDTV — 480p	16:9		✓		✓	✓	✓	✓	✓	✓
1024 x 768	XGA	4:3		✓		✓	✓	✓	✓	✓	✓
1152 x 864		4:3		✓		✓	✓	✓			
1280 x 720	HDTV — 720p	16:9				✓	✓	✓	✓	✓	✓
1280 x 768		16:9	✓	✓	✓						
1280 x 1024	SXGA	5:4		✓		✓	✓				
1365 x 768	Wide XGA	16:9				✓	✓	✓			
1365 x 1024		4:3		✓							



SIGNAL CONVERTERS

SPECIFICATIONS

INPUT

Video Connectors:
Inputs 1 & 2:
(1) BNC female for composite video &
(1) 4-Pin Mini DIN female for Y/C Inputs
Inputs 3 & 4:
(5) female BNC for Composite Video,
S-Video, Component Video, Progressive Component
Video, RGsB, RGBS, RGBHV
Audio Connectors:
(4) Pairs female RCA for Stereo L/R
Signal:
Video/Luma: 0.7 Vp-p typical, 75Ω
Chroma: 0.3 Vp-p typical, 75Ω
Video Standards Supported:
NTSC / PAL / SECAM / NTSC 4.43
RGB Scaling Input Signals:
15-60 KHz, 50-120 Hz,
Format: RGBHV/RGbs/RGsB

OUTPUT

Connectors:
RGBHV: (5) BNC female & (1) 15-pin HD female
UTP (CAT5): RJ45 Female
Audio: (1) Pair female RCA for Stereo L/R
RGB Video: 0.7 Vp-p typical, 75Ω
Sync Format: RGBHV (default), RGBS, RGsB
Resolution: 640x480 to 1365x1024
(see chart above)
Vertical Refresh Rate: 60 — 120 Hz
(see chart above)

GENERAL

RS-232 Control:
1200 to 38400 baud, N, 8, 1; 3-pin Phoenix
Power Supply:
Internal Switch Mode: 90 to 260 VAC; 47 to 63Hz
Power Consumption: 25 Watts
Shipping Weight: 7 lbs. / 3.5 kg
Product Weight: 3.5 lbs. / 1.6 kg
Dimensions:
1.75" x 17" x 12.2" / 4.4cm x 43.2cm x 31.0cm

MTBF: 35,000 Hours
Storage Temperature / Humidity:
-40° to 158° (-40° to 70°C) / 10% to 90% non-condensing
Ambient Operating Temperature / Humidity:
32° to 113° (0° to 45°C) / 10% to 90% non-condensing
Regulatory Approvals:
UL1950, CAN/CSA-22.2 No.950, Third Edition
CE: EN55022 (1987), EN50081-1 (1991),
EN50082-1 (1992 and 1994), EN60950-92

INCLUDED ACCESSORIES

IN9123B Rack Ears

ORDER INFORMATION

IN1404XT Video / RGB Scaler with
Seamless Switching and Twisted Pair Output

VTR001CM-1 Twisted Pair Receiver Module
Signal Converter Accessories — See Page 130