Crystal Vision

Clip N Key

HD/SD clip and sting stores

Clip N Key is a low-cost clip and sting store – perfect for that special clip you want to play again and again. With its ability to store and play out up to 300 seconds of moving video, it's the most convenient way to add extra video sources to a mixer to enhance transitions.

Ideal for any live events including sports programming, Clip N Key allows a special clip with associated key signal and accompanying audio to be played repeatedly – for example, the same moving image each time a team scores a goal.

With a choice of four available, you select the version you need based on the size of internal storage (4 GB or 8 GB) and the number of external video inputs (one or two). Clips are created either by recording from the video input (with easy trimming) or are downloaded to the board over 100MBit Ethernet as a graphics file, while clip playout can be triggered from a variety of standard protocols including Sony VTR and VDCP.

You could use Clip N Key to store all the short clips you'll ever need. It won't take up much space and it won't involve you tying up a server port unlike other solutions.

- Find the perfect HD/SD clip store for your application: available in four versions
- Ideal for live event programming: convenient way to add extra video sources to mixer to enhance transitions
- Store all the clips you need: choice of 4 GB and 8 GB internal stores with DRAM and Flash memory
- Clip N Key V121/V221 can store 30 seconds of moving HD video (15 seconds with key signal) or 150 seconds of moving SD video (75 seconds with key signal)
- Clip N Key V121 8G/V221 8G can store 60 seconds of moving HD video (30 seconds with key signal) or 300 seconds of moving SD video (150 seconds with key signal)
- Easily transfer a clip and key from tape: with trimming of recorded video clips
- Clips can include audio: embed audio from internal store into the video outputs
- Know you'll stay on air: relay bypass protection of main input to output 1
- Easy to use: comes with instinctive MultiLogo Control Software for operation of all functions and supports industry standard protocols for control by video mixers
- Space-saving: 100mm x 266mm module allows 12 Clip N Key V121 in 2U (six in 1U and two in desk top box), while 'double decker' 100mm x 266mm module allows six Clip N Key V221 in 2U (three in 1U and one in desk top box)

Clip N Key

THE WAY TO PLAY OUT CLIPS AT LIVE EVENTS

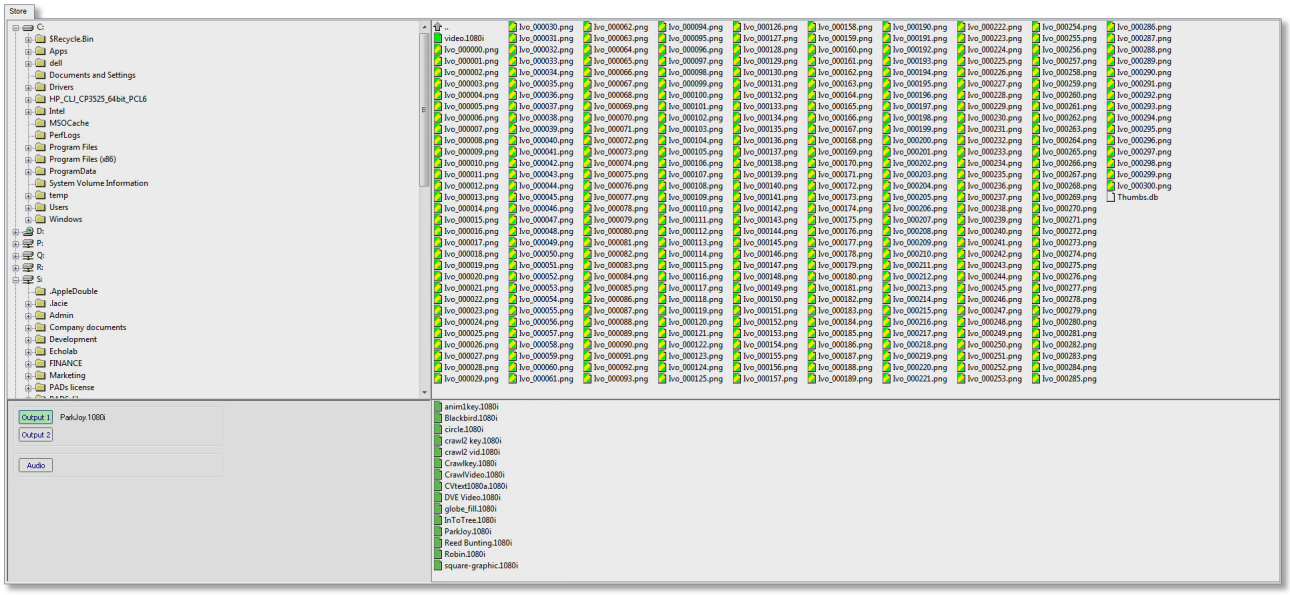
Ideal for live events programming, the Clip N Key clip and sting store allows a special clip with optional associated key signal and audio to be played repeatedly.

Clip N Key is shipped with a CD containing a special cut-down version of Crystal Vision's instinctive-to-use drag-and-drop MultiLogo Control Software which runs on the graphics computer and allows easy board control and files conversion. The software stores a list of IP addresses at which any Clip N Keys can be found, with the user able to easily change the control from one clip store to another by selecting from the list.

Clip N Key supports the BMP, JPG, TGA, PNG, SCI and WAV file formats. The Image Converter program (included in the MultiLogo Control Software) can be used to convert other file formats to the required Clip N Key format or to convert a series of images to a single file to create a moving image.

Clip N Key's uCLinux operating system results in sophisticated file handling and stability. There is also excellent connectivity with a PC, with the video clips and audio clips transferred over 100Mbit Ethernet from the PC directly into the internal store on the board which allows extensive information to be transported easily.

STORE UP TO 300 SECONDS OF CLIPS



Just drag and drop the files you want to use and assign them to one of the outputs

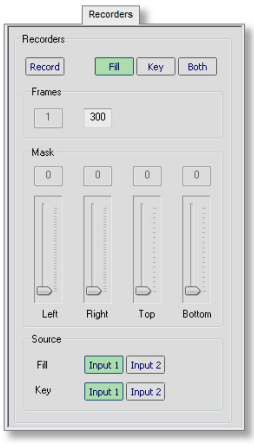
Clip N Key offers a choice of different sources for your clips – both internal and external.

The internal store is available with either 4 GB of memory on Clip N Key V121/V221 and 8 GB of memory on Clip N Key V121 8G/V221 8G. Video and audio clips are copied from the graphics PC to both the DRAM and Flash memories on Clip N Key over 100Mbit Ethernet, providing the dual benefits of DRAM's fast reading and writing and the Flash's non-volatile storage which retains the data even when the power is off.

The 4 GB internal store can hold 30 seconds of moving HD video (15 seconds if it includes a key signal) or 150 seconds of moving SD video (75 seconds with key signal). The 8 GB internal store can hold 60 seconds of moving HD video (30 seconds with key signal) or 300 seconds of moving SD video (150 seconds with key signal). The actual figures are determined by the video standard.

The number of clips able to be stored is dependent on the total length of time used, with a maximum of 250 clips on Clip N Key V121/V221 and 500 clips on Clip N Key V121 8G/V221 8G. Each screen in the MultiLogo Control Software indicates how much space you have remaining in the store – another useful feature.

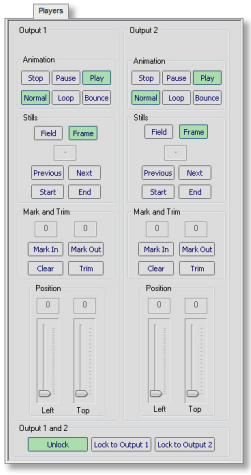
It's very easy to transfer video and audio clips from a PC to Clip N Key's internal store using the Store tab on the MultiLogo Control Software, with its familiar-looking directory tree. The upper panes show the PC file structure. Just browse to the folder that contains the files you wish to upload and then drag and drop them into the Clip N Key file store in the lower pane.



It's easy to take your clip from an external source

External sources are also available: Clip N Key can record signals from its external video inputs using the Recorders tab – convenient for those clips that are supplied to you on tape or that you need to take from a live video feed. Clip N Key V121 has one external input for the clip or sting. Clip N Key V221 provides two external input sources, allowing it to grab a fill and separate key signal at the same time so that any movement is in synchronisation on the two channels. You can record the fill only, key only or (on the V221) both fill and key, set the number of frames to be recorded and trim the recorded video. Mask controls allow the recorded picture size to be reduced to contain just the part of the image of interest – and optimise the file size. Any recordings are initially stored in the DRAM memory and need to be copied to the Flash for permanent storage.

PLAYING OUT CLIPS



Play out your clips – or trim them to remove any unwanted sections

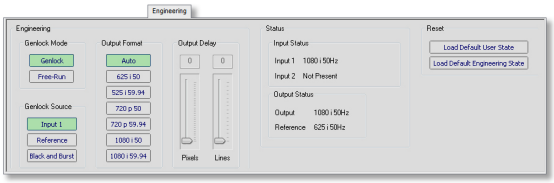
Being a solid-state device, Clip N Key will cue instantly so that any video clip is available to play without the delay that may occur on a disk or tape-based device. Clip N Key's clip playout can be easily triggered using a video mixer or automation system, as required.

The Animation section of the Players tab on the MultiLogo Control Software controls how a stored clip plays out. Normal tells the file to play to the end and then freeze on the final frame. Loop tells the file to play again from the start and is most useful for clips that stay on the screen for an extended period. If you're short of time to make your clip loop cleanly, then you can have the last frame identical to the first with the Bounce control, which plays the clip forwards then backwards repeatedly.

Clip N Key includes easy trimming of recorded video clips which makes it simple to transfer a clip and key from tape and allows flexible use of any clip that has not been prepared for computer download. Simply step through the clip frame by frame using the Next and Previous controls in the Stills section and set your Mark in and Mark out points. The clip will then run from these points, and you can either trim the clip to get rid of the unwanted sections or alternatively cancel the selection and return to the original.

The position of the clip on the screen can be controlled – ideal if you have a less than full screen clip, as you can place it exactly where you need it to be within the active picture area by moving it horizontally and vertically. To make a clip move from one part of the screen to another, a series of differently-positioned still images can be rendered into one moving image using the Image Converter program.

ALWAYS GET A CORRECTLY-TIMED OUTPUT



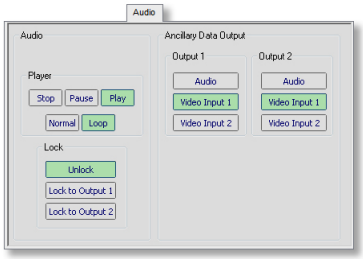
Avoid transmission problems by locking to an analogue reference

Clip N Key can be left to free-run or can be locked to either the video input or to an external Black and Burst or tri-level syncs reference using the Genlock source buttons on the Engineering tab. This analogue reference combined with the one-line TBC means that Clip N Key always gives out a correctly-timed, uninterrupted output even after a hot cut from an upstream switch – therefore avoiding any transmission problems.

In auto mode the output format will follow the input format or the format of the external reference. Should this not be desired, Clip N Key can be forced to cross-lock by selecting the output video standard.

The output delay sliders can be used to add an offset delay of up to one video line between the input or external reference and the output – allowing you to time the Clip N Key output into the rest of your system.

GIVE YOUR CLIPS AUDIO

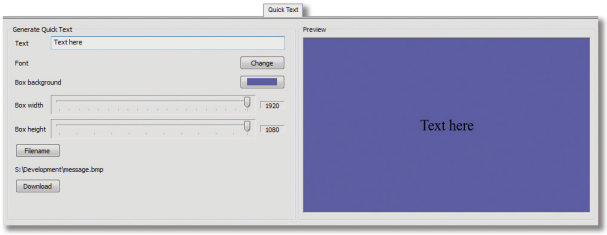


Whoosh! Give your clip accompanying audio

Clip N Key can embed a single audio group into its video outputs, with the audio sourced from 32kHz, 44.1kHz or 48kHz sampled PCM WAV files held in the audio store on Clip N Key.

The audio and video ports can be locked together so that the files can be played out at the same time, with the option to loop the audio or just play it once – perfect for giving the clip accompanying audio. Alternatively the audio and video can be started at different times.

CREATE SIMPLE TEXT

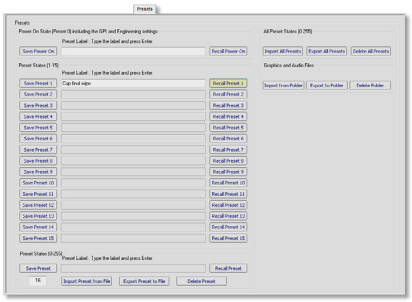


Use Quick Text to type in simple text

Quick Text is Clip N Key's simple text creation feature.

Useful for applications such as creating a studio ident for internal use, it allows the operator to use the MultiLogo Control Software to type in text and then convert that text to a graphic format which is saved in the Flash store on the Clip N Key board. The graphic can be output from the Clip N Key as a source to a downstream keyer or router. Quick Text can be used with an unlimited number of characters and with any available Windows font. The text box background can be any 24 bit colour and can be sized up to full screen 1080p.

THE POWER OF PRESETS



Save time by using presets

Up to 256 presets can be stored, and are useful for recalling different graphics and audio playout content. Identifying text can be assigned to each numbered preset, such as giving the clip's name and purpose – making it quicker for the operator to select the correct preset.

The Preset Import/Export feature allows the operator to easily copy settings from one board to another and allows increased flexibility in backing up and restoring the state of the Clip N Key. The presets are copied to a file on the PC, and this file can then be downloaded to another Clip N Key, giving the same controls and presets as the original. It's perfect for those systems involving multiple clip stores. Where all the Clip N Keys are identical, only one board has to be set up and then the presets can be

copied on to the rest. Or if every Clip N Key is different, should a board die then the Preset Import/Export feature provides a quick way to put in a different board and make it look the same as the original in terms of operation. You can choose to import/export either all presets or an individual one, while presets can also be deleted. The current control state of the board is always saved and exported with the presets.

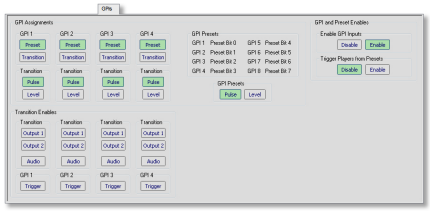
You can also save time with the Save Power On control which allows you to save the state of the Clip N Key after power up and then recall it using the Recall Power On control.

SAVE RACK SPACE - AND PROTECT YOUR OUTPUT

Clip N Key will save you rack space, with up to 12 V121 or six of the 'double decker' V221 fitting in 2U. The 100mm x 266mm module is housed in Crystal Vision's Indigo frames – available in 2U, 1U and desk top box sizes – allowing it to be easily integrated with any of the interface and keying products, while making it ideal for saving space in a sports OB vehicle.

Clip N Key also includes relay bypass protection of the input in the event of power failure or board malfunction or removal.

MORE CONTROL OPTIONS



Use GPIs to recall presets or trigger the clip playout

The MultiLogo Control Software offers the most complete control of Clip N Key. However, it's not the only option available.

Four configurable GPI inputs can be toggled between recalling presets and transition control. If the GPI is set to 'transition' it can trigger the playout of Output 1, Output 2 and the Audio store – whichever of these is selected using the MultiLogo Control Software. Clip N Key V221 includes a further four GPIs available for recalling presets. Clip N Key copes with both pulse and latching GPIs.

Clip N Key supports the VDCP and Sony VTR for those that wish to use these industry standard protocols for operating the clip store using a mixer or automation system – made even easier by the dedicated RJ45 connector on the RM52 frame rear module.

Crystal Vision's own ASCII protocol can be easily implemented for simple button box type control, offering a short, simple message structure with no handshaking or error recovery. Supporting both Ethernet and RS422, it provides a method to get and set the value of controls, with Clip N Key's XML file describing all the controls available.

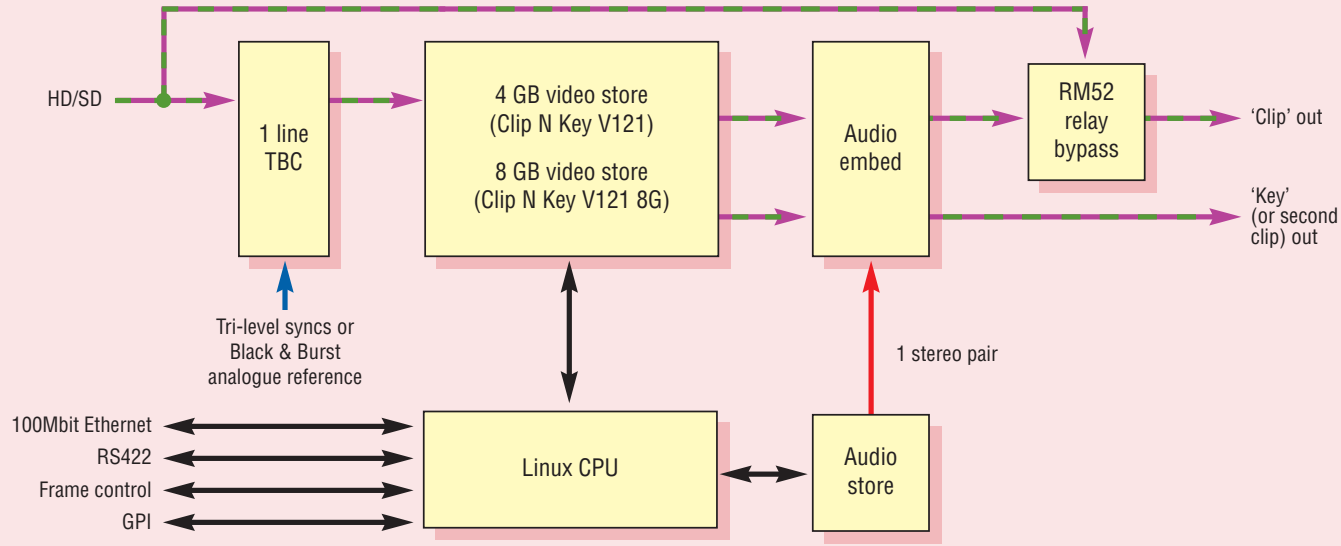
Basic control is also available from Crystal Vision's usual methods – board edge switches, an integrated control panel on the AE frame, the VisionPanel remote control panel, the SBB-4 smart button box, SNMP, the Statesman Lite PC software and the VisionWeb Control web browser software.

WHICH CLIP N KEY DO YOU NEED?

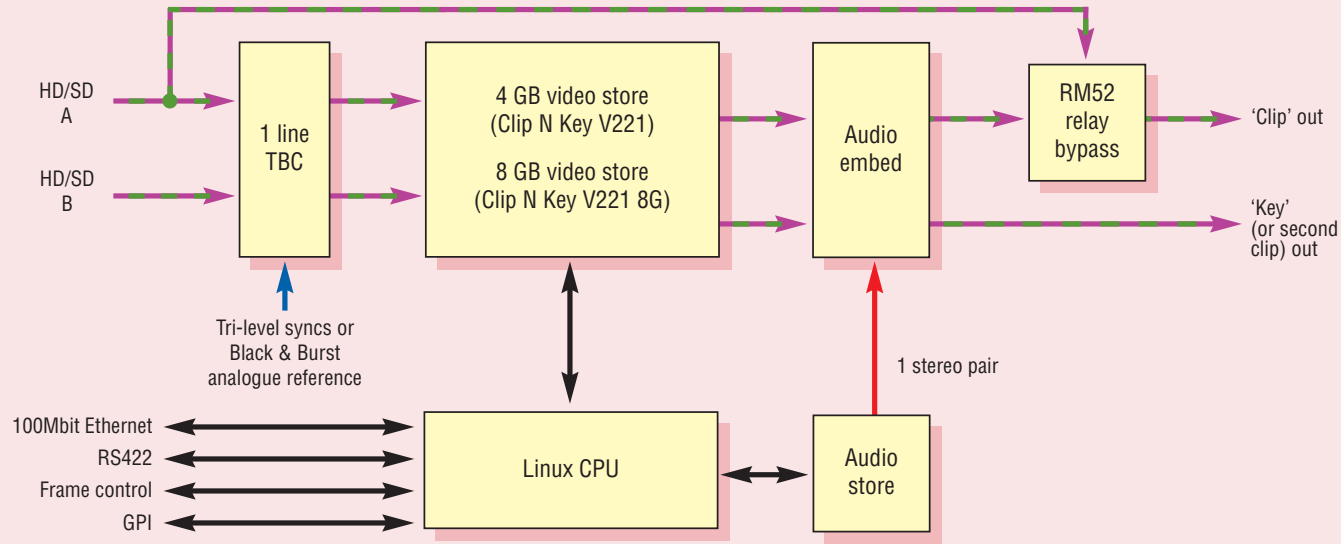
	Clip N Key V121	Clip N Key V121 8G	Clip N Key V221	Clip N Key V221 8G
Input formats (50Hz and 59.94Hz)	720p, 1080i, 625i, 525i	720p, 1080i, 625i, 525i	720p, 1080i, 625i, 525i	720p, 1080i, 625i, 525i
Number of external video inputs	1	1	2	2
Number of video outputs	Clip and either key or second clip	Clip and either key or second clip	Clip and either key or second clip	Clip and either key or second clip
Size of internal store (DRAM, backed up to Flash)	4 GB	8 GB	4 GB	8 GB
Length of HD video stored (no key signal)	30 seconds (50Hz); 25 seconds (59.94Hz)	60 seconds (50Hz); 50 seconds (59.94Hz)	30 seconds (50Hz); 25 seconds (59.94Hz)	60 seconds (50Hz); 50 seconds (59.94Hz)
Length of HD video stored with key signal	15 seconds (50Hz); 12 seconds (59.94Hz)	30 seconds (50Hz); 25 seconds (59.94Hz)	15 seconds (50Hz); 12 seconds (59.94Hz)	30 seconds (50Hz); 25 seconds (59.94Hz)
Length of SD video stored (no key signal)	150 seconds	300 seconds	150 seconds	300 seconds
Length of SD video stored with key signal	75 seconds	150 seconds	75 seconds	150 seconds
Maximum number of clips stored	250	500	250	500
Grab fill and separate key signal at same time for synchronised movement			●	●
Record sections of live feeds, with trimming	Fill or Key	Fill or Key	Fill or Key or Both	Fill or Key or Both
Simple text creation	●	●	●	●
Reference timing from input 1 or from SD Black and Burst or HD tri-level syncs, with one-line TBC	●	●	●	●
Relay bypass protection	●	●	●	●
Play out embedded audio	●	●	●	●
Number of presets	256 (16 recallable by GPI)	256 (16 recallable by GPI)	256 (256 recallable by GPI)	256 (256 recallable by GPI)
GPI inputs	4	4	8	8
Frame slots used	1	1	2	2

THE INPUTS AND OUTPUTS

Clip N Key V121/V121 8G

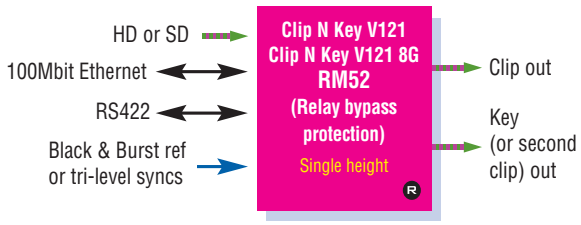


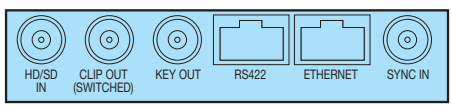
Clip N Key V221/V221 8G



REAR MODULE CONNECTIONS

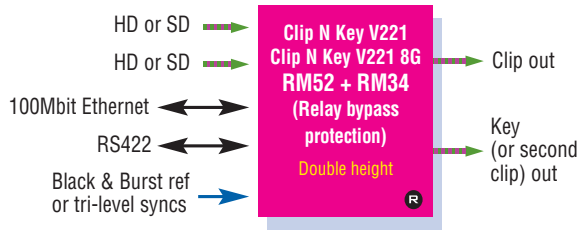
Clip N Key V121/V121 8G

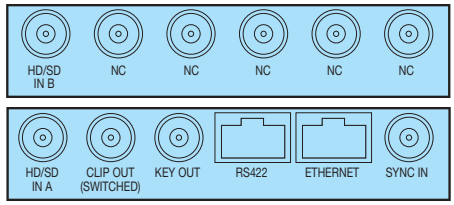




RM52

Clip N Key V221/V221 8G





RM52 + RM34

SPECIFICATION

Specification applies to both 4 GB and 8 GB versions of Clip N Key unless otherwise stated

MECHANICAL
Clip N Key V121/V121 8G: Standard Crystal Vision module 266mm x 100mm
Clip N Key V221/V221 8G: 'Double decker' Crystal Vision module 266mm x 100mm (uses two frame slots)
Weight: 200g (Clip N Key V121); 300g (Clip N Key V221)
Power consumption: 12.5 Watts (Clip N Key V121); 16 Watts (Clip N Key V221)

OPERATING SYSTEM
Clip N Key runs the uCLinux operating system

VIDEO AND AUDIO STORE
Non-volatile multi-port internal store for pre-prepared clips (4 GB store on V121/V221 and 8 GB store on V121 8G/V221 8G)
Internal store is duplicated in RAM and Flash
Moving HD video: Clip N Key V121/V221 can store approximately 30 seconds in 50Hz (15 seconds with key signal) and approximately 25 seconds in 59.94Hz (12 seconds with key signal); Clip N Key V121 8G/V221 8G can store approximately 60 seconds in 50Hz (30 seconds with key signal) and approximately 50 seconds in 59.94Hz (25 seconds with key signal)
Moving SD video: Clip N Key V121/V221 can store approximately 150 seconds (75 seconds with key signal); Clip N Key V121 8G/V221 8G can store approximately 300 seconds (150 seconds with key signal)
Number of clips able to be stored is dependent on total length of time used, with maximum of 250 clips on Clip N Key V121/V221 and 500 clips on Clip N Key V121 8G/V221 8G
Flash store is used to preserve all video and audio data when the board is powered down, with data then copied to RAM on power up
DRAM store has two video output streams and one audio output stream

VIDEO INPUTS
Clip N Key V121: One HD or SD input for clip (Key signal needs to be input separately)
Clip N Key V221: Up to two HD or SD inputs for clip with optional key signal
Sections of the live HD or SD input can be recorded. Number of frames to be recorded can be selected and whether to record fill only, key only or (on V221) fill and key. Mask controls can be used to reduce the recorded picture size to the area of interest only
270Mb/s or 1.5Gb/s serial compliant to EBU 3267-E, SMPTE 259 and SMPTE 292-1
HD cable equalisation up to 140m with Belden 1694A or equivalent (approx. 100m with Belden 8281). SD cable equalisation >250m Belden 8281 or equivalent
Input return loss: -15dB for 50MHz to 1.5GHz
Auto 50/59.94Hz and video format selection

ANALOGUE REFERENCE AND DELAY THROUGH BOARD
The output can be locked to an SD Black & Burst or HD tri-level syncs analogue reference
Each input has a one-line TBC to align the input signal timing
SD delay: 6.5us min - one line plus 6.5us max
HD delay: 1.7us min - one line plus 1.7us max
Output timing can be from either an analogue reference or input 1, with a user offset of up to one video line. When locked to an analogue reference, the relative timing will be 0.0us plus any user set delay. Using input 1 as the reference source will give the minimum delay plus any user set delay
Input to output embedded audio processing delay: 4 lines

VIDEO OUTPUTS
One HD or SD clip output and one key or second clip output using RM52 frame rear module (V121/V121 8G) or RM52 and RM34 frame rear modules together (V221/V221 8G)
Relay bypass protection of the main input to the main output
Serial output: 270Mb/s or 1.5Gb/s serial compliant to EBU 3267-E, SMPTE 259 and SMPTE 292-1
In auto mode Clip N Key will default to outputting either the input standard or the external reference standard. When the output required is HD and the reference is SD Black and Burst, Clip N Key can be forced to cross-lock as long as the output format selected and external reference share the same frame rate. The output video standard can be fixed so that the Clip N Key can be powered without input and used as a standalone video source

PLAYING OUT CLIPS
The supported file types are BMP, JPG, TGA, PNG, SGI and WAV (32, 44.1 and 48kHz PCM audio). The included Image Converter program can be used to convert other file formats to the required Clip N Key format or to convert a series of images to a single file to create a moving image
The animation controls set the way the selected clips are played out and are Play, Pause, Stop, Normal, Loop and Bounce
The position of the clips on the screen can be controlled
Recorded video clips can be easily trimmed: go through clip frame by frame using Previous and Next controls and select Mark in and Mark out points. The clip will then run from the new Mark in and Mark out points and can be either trimmed to permanently remove the unwanted sections or cancelled to return to the original
Outputs can be locked together to ensure fill and key signals play out at the same time and are same screen position

QUICK TEXT
Simple text creation feature which is part of the MultiLogo Control Software
Allows operator to type in text for internal use, such as for a studio ident, and then convert the text to a graphic format which is saved in the Flash on the Clip N Key board. The graphic can be output from the Clip N Key as a source to a downstream keyer or router
Can be used with an unlimited number of characters and any available Windows font
Text box background can be any 24 bit colour and can be sized up to full screen 1080p
Text defaults to centre alignment
Type \n to put text on a new line

AUDIO
Clip N Key can embed a single audio group into its video outputs. The audio is sourced from 32kHz, 44.1kHz or 48kHz sampled PCM WAV files held in an audio store on Clip N Key and will be embedded into group 1 of the chosen video output(s)
Audio and video ports can be locked together so files can be played out at the same time allowing a clip to have accompanying audio. Alternatively the audio and video can be started at different times if the audio is not locked to the video playout starting point
Audio player controls are: Play, Stop, Pause, Normal (play once), Loop (play continuously), Lock to Output 1, Lock to Output 2 and Unlock. The audio player controls are inactive when an audio file is locked to a video port

ANCILLARY DATA
Ancillary data including audio can be taken from one of the inputs
Ancillary data can be passed directly from the selected input to the outputs. If an internal audio source is selected the ancillary data will be blanked before the audio insertion

PRESETS
Up to 256 presets can be stored and recalled from the MultiLogo Control Software or GPI
Clip N Key V121 can recall up to 16 presets by GPI. Clip N Key V221 can recall up to 256 presets by GPI
Identifying text can be assigned to each numbered preset
State of Clip N Key after power up can be saved using Save Power On control and recalled using Recall Power On control
The Preset Import/Export feature allows settings to be easily copied from one board to another. Using the MultiLogo Control Software, either all presets or an individual preset can be imported/exported. Presets can also be deleted. The current control state of the board is always saved and exported with the presets. The presets are copied to a file on the PC, and this file can then be downloaded to another Clip N Key, giving the same controls and presets as the original

GPI INPUTS
Clip N Key V121: Four GPI inputs
Clip N Key V221: Eight GPI inputs (last four are dedicated to recalling presets)
The first four GPIs can be toggled between recalling presets and transition control
When transition control is chosen, each GPI can be individually selected to play out Output 1, Output 2 and the Audio store
Active: pull to ground, pulled up to +5V through 10 kohm
Works with pulse or latching GPI levels

LED INDICATION OF:
Power supplies okay
Main input present
SD/HD input

LOCAL CONTROL
Board edge with ten character alphanumeric display

REMOTE CONTROL
100Mbit Ethernet connectivity from the graphics PC straight into the internal store on the board, via the RJ45 connector on the RM52 rear module, for easy transfer of clips and audio files
RM52 frame rear module includes dedicated RJ45 connector for RS422 control
Software:
MultiLogo Control Software is included on a CD with Clip N Key and allows full control of the clip store
MultiLogo Control Software stores a list of IP addresses at which any Clip N Keys can be found, with the user able to easily change the control from one clip store to another by selecting from the list
VisionWeb Control is available via the web server on the frame and allows basic operation using a standard web browser on a computer, tablet or phone
Statesman Lite allows basic control from any PC on a network
SNMP monitoring and control available as a frame option
Industry standard protocols help Clip N Key to work with automation systems. Second serial port (link select instead of GPI inputs) allows connection to automation systems and video mixers
Crystal Vision's ASCII protocol can be easily implemented for simple button box type control
Hardware:
Basic control from integrated control panel on Indigo 1AE-DP frame
Basic control from VisionPanel 3U remote panel
SBB-4 smart button box connects to the frame via Ethernet and provides four programmable LCD switches (which are configured for each order). The SBB-4 uses information from VisionWeb for settings. Uses Power over Ethernet so must be used with PoE enabled switch
Manufacturer FOR-A has provided a specific driver for Clip N Key on its HVS-350HS video mixer

ORDERING INFORMATION

Clip N Key V121	HD/SD clip and sting store with 4 GB internal store and one external video input
Clip N Key V121 8G	HD/SD clip and sting store with 8 GB internal store and one external video input
Clip N Key V221	HD/SD clip and sting store with 4 GB internal store and two external video inputs
Clip N Key V221 8G	HD/SD clip and sting store with 8 GB internal store and two external video inputs
Indigo 2SE	2U frame with active front panel featuring smart CPU for up to 12 Crystal Vision modules
Indigo 1AE-DP	1U frame with active front panel featuring smart CPU and integrated control panel for up to six Crystal Vision modules, with included power supply redundancy
Indigo 1SE-DP	1U frame with active front panel featuring smart CPU for up to six Crystal Vision modules, with included power supply redundancy
Indigo DT	Desk top box with passive front panel for up to two Crystal Vision modules
Indigo DTSE	Desk top box with active front panel featuring smart CPU for up to two Crystal Vision modules
RM52	Single slot frame rear module used for Clip N Key V121 and Clip N Key V121 8G. Allows maximum number of boards in frame (12 in 2U, six in 1U, two in desk top box). Provides relay bypass protection. Gives access to one HD/SD input with one clip output and one key or second clip output
RM52 + RM34	Two single slot frame rear modules used together for Clip N Key V221 and Clip N Key V221 8G. Allows six boards in 2U, three in 1U and one in desk top box. Provides relay bypass protection. Gives access to two HD/SD inputs with one clip output and one key or second clip output
VisionPanel	3U Ethernet remote control panel with touch screen
SBB-4	Smart button box with four programmable LCD switches. It is powered by PoE (Power over Ethernet) and therefore needs to be connected to a PoE enabled switch
VisionWeb Control	VisionWeb web browser control included within frame software
Statesman Lite	PC Control System
SNMP	SNMP monitoring and control

Crystal Vision

Crystal Vision Ltd. Lion Technology Park, Station Road East, Whittlesford, Cambridge CB22 4WL, England.
Tel: +44 (0)1223 497049 E-mail: sales@crystalvision.tv @crystalvisionuk www.crystalvision.tv