Ordering Guide: NewTek TriCaster 2 Elite

NewTek TriCaster 2 Elite Overview

NewTek TriCaster 2 Elite is a leading-edge solution without legacy compromises and traditional boundaries. TriCaster 2 Elite embraces the creation of any type of motion media content and delivering it to anywhere viewers want to watch. As Television, the Internet, and Mobile continue to blend together, TriCaster 2 Elite has the flexibility and agility to handle any type of production.

TriCaster 2 Elite is a transformative, software-driven hub of a digital media ecosystem that transcends conventional workflows by leveraging advanced media processing with networking and computing technologies to enable limitless and distributed production. TriCaster 2 Elite connects everything across a simplified network infrastructure via NDI®, NewTek's innovative Network Device Interface technology that enables IP and SDI interoperability. TriCaster 2 Elite is the most configurable, customizable, scalable solution available to meet the growing demands of digital media production organizations.

Facilities and organizations looking to redefine their productions, their workflows, and their business will use TriCaster 2 Elite as the hub of a complete digital media production ecosystem that capitalizes on standard network infrastructures, accommodates existing and emerging technologies, and supports easy integration, scalable multi-source media processing, access to essentially unlimited sources, multi-platform output delivery, and operation across distributed environments.

NewTek TriCaster 2 Elite Product Highlights

For Today's Productions and Tomorrow's Demands

Combining file-based integration, streaming output, SDI compatibility, IP flexibility, UHD capacity, enhanced I/O, and support for distributed workflows, NewTek TriCaster 2 Elite integrates into your current infrastructure, while priming your facility for the future.

Beyond Live Video Production

- Comprehensive, multi-channel recording configuration for capture, playback, and archive of production content across your ecosystem
- Real-time, direct upload of clips, active recordings, and streams to social media, storage volumes, and Web-based destinations, with optional transcoding
- Essential, multi-angle instant replay functionality enabling extended in-program control, live events coverage, and highlights production
- Recording, converting, and packaging of media content including multi-cam acquisition to common non-linear editing and other systems for fluid, file-based workflows
- Composite sophisticated static and animated graphics for recording as well as for live production
- Manage the input and output of video in non-standard aspect ratios like 9:16 and square video, non-standard video frame rates, rotate and flip to produce content for any platform and destination
- Fully compatible, high-capacity, high-performance network storage available with the addition of NewTek Remote Storage – Powered by SNS

Evolutionary Approach

- Modular architecture with limitless possibilities for configuration, customization, and control
- Native integration of NDI® enabling interoperability with systems and devices from practically any manufacturer over IP
- Unrivaled, scalable capabilities: multi-source video processing, advanced audio, multimedia and visual effects, graphics integration, and multi-platform delivery output
- Flawless real-time, multi-format processing and support for a variety of digital media requirements, including Ultra HD at 60fps

Limitless Possibilities

- Implement across existing network infrastructure, interconnecting compatible technologies through software within IP space
- Link multiple locations over IP to create sophisticated multi-system, multi-site workflows
- Enhance flexibility, resiliency, and resource allocation with the ability to launch instances on demand from any location on your network
- Reduce facility requirements, operational expenses, maintenance demands, and energy usage
- Align legacy and contemporary technologies across a simplified infrastructure to maximize resources and investments

- Establish a production network in your control room or across facilities, connecting systems, users, and departments with the capacity for distributed access
- Pool production inputs, outputs, and media assets for universal access and interchange

No Boundaries
- Transition gradually or migrate immediately to IP-based production workflows with incredibly practical infrastructure and bandwidth requirements
- Remove the physical and logistical barriers limiting your potential to expand, grow, and evolve
- Make your video operations future ready with progressive technology independent of formats and resolutions
- Redefine your productions, workflows, and business now and for years to come

Interconnected Production
- Connecting, communicating, and sharing video and audio across the network using innovative NDI® technology
- Inputs, outputs, and media assets are readily available and accessible by any user in any location on the network
- Enhance productions with live, high-quality video and audio calls using Live Call Connect functionality which integrates a range of the most popular video conferencing software applications.
- Efficient operational methods to maintain quality and consistency with creative staff
  - o Run shows using NewTek Live Story Creator production automation based on Microsoft Word® documents using teleprompter control with TriCaster 2 Elite mixing and effects together with LiveGraphics
  - o Pushbutton automation using NewTek LivePanel™ for creation of software-based custom control panels to operate TriCaster 2 Elite from a desktop or mobile device- anywhere on the network

NewTek TriCaster 2 Elite Hardware Platform

The NewTek TriCaster 2 Elite hardware platform integrates TriCaster 2 Elite software to function as the nucleus of your interconnected production workflow, empowering your organization to ascend to a new level of quality, creativity, flexibility, and performance. A true IP based media processor powered by NewTek's industry-leading, software-driven live production technology, the platform is where the systems, devices, software, and sources in your workflow converge for mixing, compositing, and delivery with incomparable configuration and control.

Envision your content, creativity, and storytelling defined not by your technology, and instead by your imagination and ingenuity. Accommodating even the most ambitious modern workflows, including hybrid SDI/IP, exclusively IP, Ultra HD, and distributed workflows, the TriCaster 2 Elite hardware platform lets you realize this potential in the production and delivery of broadcasts, performances, presentations, programs, and events, and assists in the monetization of content and production-oriented business ventures.

NewTek TriCaster 2 Elite Distributed Production

As the leader in IP video technology and software-driven live production, NewTek is uniquely positioned to provide clients with a broadcast-grade production solution capable of operating within distributed environments.

Interface onto your existing network infrastructure, and interconnect with compatible technologies through software using IP transport via NewTek TriCaster 2 Elite. The NewTek distributed production model leverages NDI® technology to move video, audio, and data from one TriCaster 2 Elite system to another. This foundation in NDI® also permits workflows to encompass any and all compatible systems, devices, and applications available to the network such as the NewTek NC1 Studio I/O modules to interchange between SDI and IP, and inoperability between IP video standards, specifically NDI® and SMPTE ST 2110- along with streaming formats like SRT, RTSP and RTMP.

The result is a powerful, flexible, and efficient production model where NewTek TriCaster 2 Elite systems and other compatible software-driven platforms can be combined within the same standard IT hardware, communicate with each other and compatible edge devices over IP, and become accessible for operation from any location on your network—even from multiple remote locations simultaneously using NDI® KVM and LivePanel™ network control.

With the barriers typically imposed by specialized transport workflows removed, the NewTek TriCaster 2 Elite distributed production model empowers professionals to explore unprecedented opportunities to evolve their productions, streamline their infrastructure, and dramatically increase their productivity and profitability. Improved return on investment includes reducing facility requirements, operational expenses, maintenance demands, and energy usage.

TriCaster 2 Elite Key Features

VISUAL MASTERY	
Mix Effects	Carve your own path of creativity across 8 mix effects buses, each intuitively supporting sub-mixing, layering, compositing, and live virtual set configuration. Between source rows and key layers, each M/E bus enables layering of up to 8 video elements, all with independent DVE controls. All M/E buses include separate processing which delivers color correction, chroma and luma keying. Combined with video re-entry of each M/E on every M/E, and the ability to store and recall 9 variations of each bus configuration, you have unlimited creative potential for visual storytelling.
Animated Compositions	Produce incredibly sophisticated compositions, DVE motion sequences, squeezebacks, and animated effects with a powerful full-motion composition engine integrated into every production bus. Supporting advanced configuration, positioning, keyframing, and transitions, the 'COMP' engine captures and stores any and every operation and action you perform into a versatile snapshot preset system, enabling you to size, move, and manipulate video with ease—and at will.
Video Layering	Present your content in almost infinite ways and capitalize on branding and sponsorship opportunities, stacking layer after layer after layer of video and graphic elements to arrange your primary mix, sub-mixes, and other mix effects. And with full-time, full-motion confidence monitors for each background and overlay element integrated into the user interface, directors and operators are assured that the right visuals are displayed at the right time—every time.
Video Tools	Act on ideas that span the entire spectrum of creative expression, pouring your imagination into sophisticated compositions and effects, or making subtle adjustments that have substantial impact. Customize even the most fundamental elements of your production with fully configurable color correction tools, 3D object positioning, smooth-edge cropping, and optional borders. Combine your choice of foreground and background elements together with extensive key and fill support. And introduce countless creative possibilities to your toolbox with real-time motion tracking.
High-Quality Matte Generation	Generate crisp, clean, layered effects with powerful LiveMatte™ real-time chromakeying technology built into every source channel and M/E bus. With independent key configuration, advanced settings, including luma key, and integrated waveform and vectorscope monitors, getting an exceptionally spectacular key for countless composite scenes and live virtual set applications takes nothing more than a green screen and standard lighting.
Virtual Sets	Set the stage for your production, transforming any location into an elaborate virtual environment. With integrated LiveSet™ technology, you can composite live video sources into beautifully rendered scenes that can include multiple angles, virtual camera movements, real-time reflections, specular highlights, and animated lens flares. And by applying augmented reality effects, you can introduce even more stunning depth and dimensionality,

embedding video overlays into the 3D virtual space, producing striking real-time visuals that blur the line between virtual and reality.

COMPREHENSIVE FUNCTIONALITY	
Ultra HD	Present your audience with an immersive viewing experience defined by amazing clarity and incredible detail, producing programs, performances, events, and live sports in true UHD (Ultra High Definition) resolution. Supporting direct input and output of native 2160p video at up to 60 frames per second, as well as scalable production workflows via network integration with NewTek NC1 conversion modules, TriCaster 2 Elite offers incredible flexibility for UHD implementation. And unlike other products that promise UHD, you can switch, stream, and record UHD video without compromising the frame rate or the number of available inputs—meaning you have the capacity for 32 simultaneous, full-resolution UHD external video inputs to produce your program.
Scalable Media Functionality	- Up to 32 x simultaneous external IP video inputs via NDI®, resolution-independent, with support for key and fill, supporting any combination of compatible sources in resolutions up to UHD at frame rates up to 60fps (2160p 59.94) - Support for up to 32 simultaneous Pan-Tilt-Zoom (PTZ) robotic cameras - Up to 8 independent video mix outputs, or 2 in UHD with simultaneous delivery via IP and SDI with optional external NC1 I/O modules - Up to 48 x IP outputs via NDI (HD and SD sessions only) 8 x video mix outputs in resolutions up to 1080p at frame rates up to 60fps (1080p 59.94) or 2 x UHD video mix outputs at up to 60 frames per second (2160p 59.94) via 3G-SDI quad-link grouping 8 x direct IP source outputs via NDI translation of optionally connected SDI inputs or 2 x upconverted UHD mix outputs at up to 60 frames per second (2160p 59.94) 4 x direct IP source outputs via NDI translation of media players, with support for embedded alpha channel 15 x direct IP source outputs via NDI translation of media buffers, with support for embedded alpha channel 3x Multiviewer outputs (if 3 monitors are connected) 1x User Interface with dedicated multiviewer 1x Teleprompter output (LiveStory™ Creator) 8 x selectable IP outputs via internal NDI® matrix router 2 x resolution-independent streaming video outputs, independently configurable, with simultaneous stream archive. Support for SRT streaming has been enabled. 8 x M/E buses supporting video re-entry 1 x Mix/Effect channel per bus with support for up to 4 sources 4 x KEY layers per bus

- o   9 x memory slots per bus
  - o   1 x PREVIZ configuration and preview bus
- Up to 4 x multiviewer outputs supporting standard display resolutions, using any combination of available connections on customer-supplied hardware
- 32 x input keyers
- 16 switchable crosspoints for real-time, multi-screen and multi-feed production operations to mix and deliver 4 discrete produced outputs via SDI to downstream systems using an NC1 I/O module, plus mixing and sending 8 additional output signals over IP with a software-based 60 x 48 NDI® video router

Multiviewers	Maintain a constant watch over the array of inputs, outputs, and assets that comprise your production with scalable multi-source monitoring. TriCaster 2 Elite provides multiviewer outputs to drive local displays, with configurable workspace layouts and viewports that permit directors and operators to customize the control environment to their preferences. Beyond centralizing, organizing, and observing your choice of video signals with tally, you can calibrate monitor color characteristics and optionally display visuals such as audio VU meters, production clocks, and waveform and vectorscope for comprehensive management of your live operations.
Multi-Format Processing	Standardize to a preferred signal workflow or adapt effortlessly to your particular infrastructure and available equipment inventory, freely intermixing formats, resolutions, and frame rates with robust multi-format video processing. With optional external modules for SDI I/O supporting resolutions up to 3G 1080p and an IP-based NDI® workflow independent of specific technical criteria, you can work with established formats and emerging standards interchangeably.
Playback and Graphics	Load, cue, and roll file after file of multimedia to complement live action with multiple channels of integrated media playback. Supporting short-form and long-form video clips, images, graphics, animations, and audio tracks, the sheer number of media players at your fingertips provides endless creative opportunities from start to finish, including the ability to live edit compelling video sequences, dynamic image slideshows, and spectacular highlight sequences, complete with transitions and custom animated effects between assets.
Recording and Replay	Configure and capture multiple channels of video and audio from your program to fuel post-production workflows, facilitate collaborative creative projects, and archive produced content and ISO camera feeds for future use. With support for 8x configurable M/E channels, 8x physical SDI inputs, and 32x total configurable inputs recording for distribution, plus flexible storage options, you can continue to get value from your content long after your live productions fade to black. Insert instant replays from multiple NDI or SDI input recordings with a single click instantly; or cue to play on demand instead. Replays include custom in/out transitions and speed control. Create basic highlight clips for instant playback and publishing with shortcut commands. (Some workflows may require addition of NewTek Remote Storage)

Streaming	Stream live to your choice of new media platforms, including convenient presets for Facebook Live, Microsoft® Azure®, Twitch, YouTube™ Live, and more. With two independently configurable H.264 streaming encoders built into TriCaster 2 Elite, you can easily deliver platform-specific content to target audiences in resolutions up to UHD, while opening up new sponsorship and revenue opportunities. Support for SRT streaming has been enabled.
Video Conferencing Integration	Conduct live video calls with Live Call Connect functionality from anywhere in the world, with the only large-scale production system to integrate a range of the most popular video conferencing software applications including Microsoft Skype™, Microsoft Teams™, Zoom Meetings™, Slack, Discord™, and Tencent™. This capability enhances productions with high-quality video and audio, providing choices for you to present conversations, interviews, reports, and more—regardless of the caller's device.
Audio	A masterfully produced video program is incomplete without a rich, layered audio experience. Drive your production sound with analog, digital, and network audio connectivity and a robust, multi-source audio mixer supporting 8 channels of audio for each input and output. With a full array of audio DSPs available to configure sound with impeccable precision, every mix will strike a pitch-perfect chord with your audience. For interfacing with external audio devices over IP, there is integrated support for Dante networking protocol from Audinate®,* and AES67 networking protocol via compatible WDM audio drivers.** *Requires Dante Virtual Soundcard license from Audinate (sold separately)) ** Requires third-party virtual sound card license (sold separately)

VISIONARY INTEGRATION

Distributed Workflows	Outfit your production environment with multiple TriCaster 2 Elite systems to cascade capabilities for advanced creative applications, serve content creation needs across your network, or achieve the desired level of system redundancy. Link systems over IP and connect multiple systems from a single NewTek Control Panel or custom LivePanel. Flexible connectivity gives you universal access to production sources, outputs, and live operations throughout your infrastructure regardless of your physical location.
Automation	TriCaster 2 Elite includes extensive task automation capabilities. Explore virtually unlimited possibilities for configuration and control of your production with a comprehensive macro automation system. Record, store, edit, and automate frequently used settings, functions, and command sequences, triggering events manually with a single user action or automatically as specific live operations occur during your production. Automation can also be scaled and segmented by extending control to any number or combination of supported interfaces, including control panel keys, web-based interfaces, keyboard hotkeys, TCP/IP, GPI, MIDI, and X-keys. To add simple production automation to TriCaster 2 Elite, NewTek Live Story Creator is an application to run entire shows. You start by simply writing scripts with formatted Microsoft Word documents. The information contained in the document is translated to text that

	appears on a teleprompter and commands that trigger TriCaster 2 Elite to switch, perform transitions, and key graphics from NewTek LiveGraphics. Push button automation is easily accomplished with software-based custom control panels using NewTek LivePanel™. Through remote access from the Web browser of any device take control over video switching/mixing, M/Es and PREVIZ. Manage stored video and graphics with dedicated Media Player control. Monitor and manipulate live sound with software-driven audio mixing. Powerful studio automation is available for TriCaster 2 Elite though full integration with Viz Mosart from Vizrt. With TriCaster 2 Elite control, Viz Mosart only needs to interact with one system to achieve mixing, effects, keying, and playback.
DataLink	Incorporate current accurate statistics, results, time data, social media posts, and more, directly into your production with integrated DataLink technology. DataLink permits you to map real-time data to text and image fields from internal and external sources including metadata, webpages, spreadsheets, scoreboards, databases, and RSS feeds, instantly populating or updating titles and graphics—automatically or on demand. DataLink can also be combined with automation capabilities to streamline live titling operations for graphics-intensive productions.
Import/Export	Align seamlessly with external file-based workflows, moving video, audio, graphics, titles, animations, and images freely between platforms with optional transcoding for peak real-time performance. From batch import of pre-produced content—even in the background while a production is in progress—to live export of files from your production to social media, FTP, or storage volumes, the speed, efficiency, and flexibility of the multimedia capabilities at your command are unmatched.

TriCaster 2 Elite Advanced Software Capabilities

Live Call Connect

Many types of live productions are enhanced with the ability to easily bring in participants who are located remotely. Live Call Connect functionality integrates many of the most commonly used Internet conferencing applications including Microsoft Skype™, Microsoft Teams™, Zoom Meetings™, Slack, Discord™, and Tencent™.

Productions are enhanced with real-time interactions that feature multiple high quality video and audio inputs, so that show producers are able to connect between studios and remote guests or callers from anywhere in the world, without compromise or worrying about connectivity.

Internet Media On-Demand Input

Effortlessly bring on-demand streams into productions using Internet based sites and sources for media. This capability enables using additional external sources for content that users have rights to. Media can be quickly searched for and played out from a web browser to include the material as an input into any production.

Live Story Creator

Production automation helps many types of programs get delivered efficiently and consistently. Live Story Creator lets you deliver stories easily and effortlessly without needing technical expertise. Producers and directors are not required to have in-depth knowledge of how the automation or live production systems work. Instead of the usual production system interface, users focus on the teleprompter to run programs. A complete show is created using normal text and pre-defined syntax such as headers and comments forming a script from a Microsoft Word® document that contains:

- Teleprompter content, functionality, and control
- Embedded triggers for NewTek TriCaster switching, transitions, keying, and clip playout operations
- Cues for graphics insertion using NewTek LiveGraphics

LiveGraphics™

Design animated titles, motion graphics, and looping effects using popular Adobe® Creative Cloud® tools*—then import them directly into your NewTek live production system. With the innovative LiveGraphics Creator plugin to simplify and accelerate authoring in Adobe® After Effects® CC for users of all experience levels, plus enhanced real-time system functionality allowing unprecedented customization, playback, and automation options, LiveGraphics lets you to produce and present spectacular live graphics faster and easier than ever before.

- Transform Adobe® Photoshop® CC files into complex animations
- Simplify and accelerate motion graphics creation using Adobe® After Effects® CC
- Support for live text editing, replaceable images, and real-time data integration
- Smart layers with independent Intro, Outro, and Loop motion settings, and effects
- Configurable animation speed, delay, and layer linking for offset actions
- User-friendly, drag-and-drop interface and one-button file import/export
- Comprehensive preset library for text and layer effects
- Load layered animations and PSD files directly into system buffers
- Designate layer and data presets for any asset, then export and store as a template
- Up to 16 data presets and effect states per asset, with full macro support
- Fully compatible with DataLink™, including DataLink™ extension for Google Chrome
- 100+ customizable, production-ready templates included

Adobe® Creative Cloud® membership required. Minimum system requirements apply.

LivePanel™

Create your own software-based control panels and operate your NewTek live production system from any compatible desktop or mobile device—anywhere on the network. Easily accessible through any Web browser or operating system, LivePanel includes production-ready control panels for remote video mixing, media playback, audio mixing, and macro automation, plus the LivePanel Builder tool to design your own custom panels geared toward your unique productions and workflows.

- Compatible with workstations, laptops, tablets, and mobile devices running any current OS, to include Windows, Mac, Linux, Android, and iOS
- Compatible with modern web browsers to include Google Chrome, Microsoft Edge and Internet Explorer, Mozilla Firefox, and Apple Safari
- Allows remote access and control, with default panels included for primary system functions to include switching, audio mixing, media playback, and macro automation
- Includes LivePanel Builder, a customizable control panel creation tool allowing the user to define grid squares as buttons or video windows; apply background colors, labels, and images; assign existing macros; record new macros; and create multiple tabs to accommodate different panels
- Includes panels for DataLink™ and Keystrokes allowing for configuration of real-time, automated data feeds and manually triggered hotkeys
- Includes specialty control panels for baseball, basketball, cricket, football, hockey, and soccer, plus 11 customizable sports scoreboard graphics templates

Scalable NDI® Recording

Record from an almost unlimited number of NDI sources with no conversion
(recording from a large number of high resolution sources is not practical without adding external storage such as NewTek Remote Storage)

- Media is converted directly into files on to storage
- ISO recordings and media files are stamped with computer time
- Time stamping synchronizes multiple records even from multiple systems for multi-camera production
- On-going recording sessions are presented as sources in live production system interfaces to quickly and easily use them for instant replay from each input
- Support for growing file playback from DDR's
- Support for high efficiency HEVC compression in resolutions up to UHD 60p

Digital Media I/O

No-compromise content delivery to digital screens and conforming signals from and to modern media screen sizes, while adding flexibility to all types of productions.

- Supports non-standard video aspect ratios, like 9:16 and square video on inputs and outputs
- Supports non-standard video frame rates on inputs and outputs
- Supports non-standard video resolutions on inputs and outputs
- Rotate and flip video on inputs and outputs

LiveMatte™ Ultra

Get the highest quality chroma keying with LiveMatte™ Ultra for virtual sets and other compositing applications

Advanced Audio I/O

Merge system audio seamlessly into external routing and mixing workflows for comprehensive integration, sophisticated configuration, and complex handling. Advanced Audio I/O extracts all incoming and outgoing audio channels, including embedded SDI and NDI® audio channels, and makes them available for independent routing and delivery to external audio destinations, including Dante™, AES67, and USB sound devices, as well as compatible mixing boards and consoles.

- Supports comprehensive integration of system audio with external mixers
- Allows independent routing of any audio input or audio output channel(s) for external routing
- Enables extraction of embedded audio from SDI or NDI® sources for external routing
- Supply multiple audio channels from any input source or output to external destinations[1]
  - Up to 8x audio channels per input source or output
    [1] *Requires external audio device that supports appropriate number of channels*
- Compatible with Dante™, AES67, and USB sound devices[2]
    [2] *Dante and AES67 require compatible virtual sound card licenses (sold separately)*

NDI® KVM

Access the user interface of your NewTek live production system and take control from anywhere on your network. With NDI® KVM, your workspace is simultaneously output as an interactive NDI® video source. Simply launch NDI® Studio Monitor, select the source from among the available inputs and outputs, then view or run your production remotely from any compatible computer or device.

Virtual PTZ

Expand your shot selection and storytelling opportunities without increasing your source count. With Virtual PTZ, you can create and access multiple shots from any individual video signal—complete with live virtual zoom and real-time pan and scan effects. Start with a full-resolution camera angle or video source, define distinct areas of interest, then store as full-frame presets that you can switch or transition between seamlessly.

Virtual Set Library

Conquer the challenges of time, space, and budget while taking your presentation to a whole new level. With full access to the premium library of NewTek LiveSet™ virtual sets, you can choose from an extended variety of simulated environments to suit your style and your brand, providing an instant professional touch that enhances the look and feel of your productions.

Installer includes LiveSet effect(s) with left, center, and right camera angles, and corresponding NewTek Virtual Set Editor* template(s) for optional customization.

NewTek Virtual Set Editor software sold separately.

- Boardroom
- Chic Comfort
- Cloud City
- Communique
- Continental

- Freight Forward
- Lecture Lux
- Market Trends
- Overtime
- Ready Room

- Scandiale
- SOHO
- Warm Reception

Advanced DSK Compositing

Bring DSK's on and off screen with PGM/PST background sources using combined layering and transition effects

Control Panel Layout

Individually select different banks of sources for each row on 4 stripe and 2 stripe control panels

As Run Logs

Retrieve logs from systems to check operation and reconcile advertising schedules

Pre-Multiplied Alpha Support

Apply when using input sources that utilize pre-multiplied keying

Test Patterns

Generate various patterns for system testing

TriCaster 2 Elite Technical Specifications

Video Input	32 x simultaneous external video inputs, supporting any combination of compatible sources in resolutions up to UHD at frame rates up to 60fps (2160p 59.94)
Network Video Input	32 x IP inputs via NDI®, resolution-independent, with support for key and fill
SDI Video Input[1]	8 x 3G/HD/SD-SDI connections supporting video input in any combination of standard formats, resolutions, and frame rates[2] • 1080p: 59.94, 50, 29.97, 25 • 1080i: 59.94, 50 • 720p: 59.94, 29.97, 25 • 576i 50 • 480i 59.94 [1] *Optionally supports up to 32 simultaneous 3G/HD/SD-SDI video inputs or quad-link 3G-SDI video inputs (4K UHD) via network integration with NewTek NC1 conversion modules* [2] *Available frame rates determined by session video standard (NTSC or PAL)*
PTZ	Support for up to 32 simultaneous Pan-Tilt-Zoom (PTZ) robotic cameras via serial and network protocols, including RS232, RS422 and IP, with integrated controls and preset system
Conferencing Calling	Support for multiple simultaneous video call inputs with Teams, Skype, Zoom, Discord, and Tencent software integration
Video Output	Configurable for up to 8 independent HD or 2 UHD video mix outputs, with simultaneous delivery via IP and SDI
Network Video Output	48 x IP outputs via NDI® (HD and SD sessions only) • 8 x video mix outputs in resolutions up to 1080p at frame rates up to 60fps (1080p 59.94) or 2 x UHD video mix outputs at up to 60 frames per second (2160p 59.94) • 8 x direct IP source outputs via NDI® translation of local SDI inputs or 2 x upconverted UHD outputs at up to 60 frames per second (2160p 59.94) • 4 x direct IP source outputs via NDI® translation of media players, with support for embedded alpha channel • 15 x direct IP source outputs via NDI® translation of media buffers, with support for embedded alpha channel • 3x Multiviewer outputs (if 3 monitors are connected). 4K support on 2x Multiviewer outputs while the 3rd outputs in HD • 1x User Interface with dedicated multiviewer • 1x teleprompter output (LiveStory™ Creator) • 8 x selectable IP outputs via internal NDI® matrix router
SDI Video Output	8 x 3G/HD/SD-SDI connections, optionally configurable for: • 8 x independent 3G/HD/SD video mix outputs supporting standard NTSC and PAL formats, resolutions, and frame rates[3] • 2 x 4K UHD video mix output via 3G-SDI quad-link grouping, supporting frame rates up to 60fps (2160p 59.94)

3 *Available frame rates determined by session video standard (NTSC or PAL)*

Stream Output	2 x resolution-independent streaming video outputs, independently configurable, with simultaneous stream recording. Support for SRT streaming has been enabled.
Multiviewer Output	4 x multiviewer outputs supporting standard display resolutions, using any combination of available connections • 1 x HDMI • 3 x DisplayPort
Mix/Effect Buses (M/E)	8 x M/E buses supporting video re-entry • 1 x Mix/Effect channel per bus with support for up to 4 sources • 4 x KEY layers per bus • 9 x memory slots per bus 1 x PREVIZ configuration and preview bus
DSK Channels	4 x DSK channels
Media	5 x media players • 4 x DDR • 1 x Sound 15 x media buffers • 10 x animation buffers with GIF support • 5 x graphic buffers
Keyers	Integrated LiveMatte™ chroma and luma keying technology on all source channels and M/E buses • 32 x input keyers • 4 x media player keyers • 8 x M/E keyers • 1 x PREVIZ keyer • 15 x buffer keyers
COMPs	Integrated video composition engine on the switcher and each M/E bus to create, store, and apply layer configurations and DVE-style motion sequences • 16 x configurable COMP presets per bus
Virtual Sets	Integrated LiveSet™ technology with 30+ live virtual sets and box effects included
DataLink	Integrated DataLink™ technology enabling real-time, automated data input from internal and external sources, including webpages, spreadsheets, scoreboards, databases, RSS feeds, watch files, XML, CSV, ASCII and more
Macros	Record, store, edit and automate commands and user-configured operation sequences • Attach to control panel buttons, keyboard shortcuts, hotspots, MIDI and X-keys® buttons or GPI triggers • Attach to internal events and state changes, including audio, media playback, tally and specific switcher actions

	• Supports control via web-based interface
Recording	32 x total video recording channels • 8 x configurable M/E channels for HD or 2 x for UHD • 8 x physical SDI inputs • 4 x DDR's • 2 x streaming encoders • Support for growing file playback from DDR's • Instant Replay capability on each input • 32 x total configurable inputs
Storage	4 x 1TB SSD internal storage • Quantity varies by format, resolution and file specification • Supports recording to external storage via USB 3.0 and eSATA • Supports shared storage integration and third-party partner solutions
Grab	Grab full resolution, deinterlaced still images from external video sources and outputs
Export	Export video and image files to social media, FTP, local or external volumes, and network servers, with optional transcoding
Audio	16 channels of audio passthrough Integrated multi-channel audio mixer with support for 8-channel audio, DSPs and 4x8x8 audio input routing
Local Audio Input	8 x SDI embedded 1 x Balanced XLR stereo pair (Line) 3 x Balanced 1/4" stereo pairs (Line)
Local Audio Output	8 x SDI Embedded 1 x Balanced XLR stereo pair 1 x Balanced 1/4" stereo pair 1 x Stereo 1/4" (phones)
Network Audio	• Native support for network audio input and output via NDI® • Embedded audio supported for all NDI®input and output video signals • Integrated support[5] for Dante™ networking protocol from Audinate® • Support for AES67 protocol via compatible WDM audio drivers[6] [5] *Requires Dante Virtual Soundcard license from Audinate (sold separately)* [6] *Requires third-party virtual sound card license (sold separately)*
Supported Media File Formats	Import, store, and play back multimedia files, with optional transcoding, including: • Video: AVI, DV, DVCPro, DVCProHD, FLV, F4V, H.263, H.264, MOV, MKV, MJPEG, MPEG, MP4, WMV, WebM, and more • Image: PSD, PNG, TGA, BMP, JPEG, JPEG-XR, JPEG2000, EXR, RAW, TIF, WebP, and more • Audio: AIFF, MP3, WAV, and more
Monitoring	Support for up to 4 multiviewer displays with configurable workspaces and viewports. Support for 4K on 2 multiviewers while the other 2 multiviewers output in HD.
Signal Monitoring	Integrated waveform and vectorscope, full field rate with digital calibration, color preview and support for ITU-R Rec. 709

Processing	Video: Floating Point YCbCr +A 4:4:4:4 Audio: Floating Point, 96 kHz
Throughput Latency	~1.0-1.5 frames
A/V Standards	• UHD video conforms to SMPTE 2036 (UHDTV1 using Square Division Quad Split) • 3G-SDI video conforms to SMPTE 424M (Level A) • HD-SDI video conforms to SMPTE 292M • SD video conforms to SMPTE 259M and ITU-R BT.656 • Analog audio levels conform to SMPTE RP-155
Tally	Support for hardware tally via HD15 GPI connector, network tally via NDI®, and Blackmagic Design® SDI tally standard
Genlock	Genlock input supporting SD (Bi-level) or HD (Tri-level) reference signals
GPI	Supports GPI signals via JLCooper Electronics eBox GPI interface
MIDI	Support for standard MIDI protocol enabling third-party device control
System Drive	250GB SSD
NIC	• 1 x 10 GbE 1 x 1 Gigabit
System Physical	3RU chassis with 650W redundant PSU and multi-tiered hardware and software fail-safe • 19.0 x 5.25 x 19.57 in (48.3 x 13.34 x 49.7 cm) with rack ears attached • 34 lbs (15 kg)

Subject to change without notice.

NewTek 4-Stripe Control Panel

NewTek 2-Stripe Control Panel

NewTek TriCaster 2 Elite Control Panels

High-level description

NewTek TriCaster 2 Elite Control Panels connect you to the systems, devices, software, and sources that form your interconnected production environment. Pairing the 4-Stripe Control Panel or 2-Stripe Control Panel with TriCaster 2 Elite systems across your network, you have consummate control of the most sophisticated productions under the most demanding of circumstances.

TriCaster 2 Elite Control Panel Key Benefits

Rise to the challenges of today's productions and tomorrow's demands, approaching every production with absolute confidence.

Expertly Engineered
Meticulously crafted for performance and style, NewTek TriCaster 2 Elite Control Panels combine the comprehensive functionality, precision controls, premium hardware mechanics, and ergonomic design that operators demand with the visually arresting aesthetic that executives covet.

Functionally Sound
- Responsive, multi-bus operation of any TriCaster 2 Elite system on the network with independently assignable control stripes
- Intuitive, multi-source video mixing with dynamic LCD label displays and per-stripe access to all TriCaster 2 Elite system crosspoints via delegate banks
- Decisive, manual control of multiple functions with multi-mode T-bars supporting variable illumination, and multi-purpose 3-axis joysticks
- Inclusive command of real-time video operations, including convenient, fingertip access to media, COMPs, MEMs, and macros

TriCaster 2 Elite Control Panel Comparison

	4-Stripe Control Panel	2-Stripe Control Panel
Stripes	4 x panel stripes	2 x panel stripes
Crosspoints	72 x crosspoints per stripe (24 buttons with 3 delegate banks)	64 x crosspoints per stripe (16 buttons with 4 delegate banks)
Joystick	2 x multi-mode joysticks (3-axis)	1 x multi-mode joystick (3-axis)
T-Bar	4 x multi-mode T-Bars (1 per stripe)	2 x multi-mode T-Bars (1 per stripe)
Connectivity	1 Gigabit NIC	1 Gigabit NIC
Physical	4S chassis with 25W PSU 42.4 x 21.26 x 6.13 in (107.7 x 54.0 x 15.6 cm)	2S chassis with 25W PSU 35.7 x 11.96 x 5.00 in (90.7 x 30.4 x 12.7 cm)

TriCaster 2 Elite 4-Stripe Control Panel Technical Specifications

Stripes	4 x panel stripes independently configurable for switcher, M/E, PREVIZ, or NDI® output router operation • Dynamic LCD crosspoint label displays • Support for bank, layer, and key delegation • Support for multi-system control
Crosspoints	72 x crosspoints per stripe (24 buttons with 3 delegate banks)
COMPs	Direct panel access to COMP Bin presets
Macro	Macro mode and number pads supporting attachment and activation of user-configured macros
Media	2 x media player control keypads with player delegation and command buttons
MEM	Direct panel access to TriCaster 2 Elite system switcher and M/E MEMs
T-Bars	4 x multi-mode T-Bars (1 per stripe) with dynamically variable illumination and support for BKGD video layer and key layer delegation • Fade • Transition • Fade to Black • LiveSet™ Zoom
Joysticks	2 x multi-mode joysticks (3-axis) supporting stripe, layer, and key delegation • Position/Scale • Rotate • Crop • LiveSet virtual camera control • PTZ camera control • Media player shuttle
NIC	1 Gigabit NIC
Physical	4S chassis with 25W PSU • 42.4 x 21.26 x 6.13 in (107.7 x 54.0 x 15.6 cm) • 49.75 lbs (22.57 kg)

Subject to change without notice.

TriCaster 2 Elite 2-Stripe Control Panel Technical Specifications

Stripes	2 x panel stripes independently configurable for switcher, M/E, PREVIZ, or NDI® output router operation • Dynamic LCD crosspoint label displays • Support for bank, layer, and key delegation • Support for multi-engine control
Crosspoints	64 x crosspoints per stripe (16 buttons with 4 delegate banks)
COMPs	Direct panel access to COMP Bin presets
Macro	Macro mode and number pads supporting attachment and activation of user-configured macros
Media	1 x media player control keypad with player delegation and command buttons
MEM	Direct panel access to TriCaster 2 Elite system switcher and M/E MEMs
T-Bars	2 x multi-mode T-Bars (1 per stripe) with dynamically variable illumination and support for BKGD video layer and key layer delegation • Fade • Transition • Fade to Black • LiveSet™ Zoom
Joystick	1 x multi-mode joysticks (3-axis) supporting stripe, layer, and key delegation • Position/Scale • Rotate • Crop • LiveSet virtual camera control • PTZ camera control • Media player shuttle
NIC	1 Gigabit NIC
Physical	2S chassis with 25W PSU • 35.7 x 11.96 x 5.0 in (90.7 x 30.4 x 12.7 cm)

Subject to change without notice.

NewTek NC1 Studio I/O IP Module

High-level description
The NewTek NC1 Studio I/O IP Module is an IP video system that combines direct interoperability between IP video standards, to include NDI® and SMPTE ST 2110, and compatibility with systems and devices across your network to expand possibilities for switching, streaming, display, and delivery in your production workflow.

Studio I/O IP Module Product Highlights

Harness the full potential of IP workflows at every level. Supporting interoperability between IP formats with full bi-directional conversion of SMPTE ST 2110 to and from NDI®, the NewTek NC1 Studio I/O IP Module is a powerful solution designed for broadcasters seeking to simplify their infrastructure by using high-speed Ethernet to move video and audio throughout their facilities.

- Translate up to 4 compatible video sources to SMPTE ST 2110, NDI®, or a combination of both, for delivery to compatible destinations and devices with near-zero latency
- Independently configure each channel for resolutions up to 1080p at 60 frames per second
- Built-in video server function with extensive file format support, full-resolution playback, and output to IP
- Flexible audio networking, with support for input and delivery of NDI®, Dante™, and AES67* audio
- Dedicated multiviewer with selectable workspace layouts and customizable viewports
- Precision color calibration with independently configurable color correction tools and integrated waveform and vectorscope
- Two 10 Gigabit (10GbE) SFP+ interfaces supporting MSA-compatible transceivers
- Two RJ-45 Gigabit interfaces to connect to standard Ethernet
- Genlock over IP as per SMPTE 2059-2
- Integrates with compatible systems and devices across your network for switching, streaming, display, and delivery
- Stack modules in a single location or station in multiple locations to meet the demands of your productions
- Low-profile 1RU chassis with redundant power

Dante™ and AES67 require compatible virtual sound card licenses (sold separately)

Studio I/O IP Module and Distributed Production

The Studio I/O IP Module represents a vital component in the path to distributed production. Integrating SMPTE ST 2110 with NewTek's software-driven live production approach, it enables broadcasters to readily leverage a standards-based infrastructure while taking advantage of their existing networks and NDI® technology to move video between systems. With the barriers typically imposed by proprietary hardware removed, broadcasters are free to explore new opportunities to increase flexibility, productivity, and efficiency within their installations.

Studio I/O IP Module Technical Specifications

IP I/O	4 x 3G/HD/SD IP conversion channels • 4 x IP inputs supporting NDI® or SMPTE ST 2110 • 4 x IP outputs supporting NDI® or SMPTE ST 2110
Conversion	Channels independently configurable for translation to NDI® or SMPTE ST 2110
Audio Networking	• Native support for network audio input and output via NDI® • Embedded audio supported for all NDI® input and output video signals • Integrated support[1] for Dante™ networking protocol from Audinate® • Support for AES67 protocol via compatible WDM audio drivers[2] [1] *Requires Dante Virtual Soundcard license from Audinate (sold separately)* [2] *Requires third-party virtual sound card license (sold separately)*
Audio Channels	Up to 16 channels of AES67 PCM audio per video flow for SMPTE ST 2110-30 encapsulation
Standard Formats Supported	• 1080p: 60, 59.94, 50, • 1080p/PsF: 30, 29.97, 25, 24, 23.98 • 1080i: 30, 29.97, 25 • 720p: 60, 59.94, 50 • 576i: 25 • 480i: 29.97
Media	Support for up to 4 simultaneous channels of integrated media playback, configurable per channel, and available for IP output
Media File Formats Supported	• Video: AVI, DV, DVCPro, DVCProHD, FLV, F4V, H.263, H.264, MOV, MKV, MJPEG, MPEG, MP4, WMV, WebM, and more • Image: PSD, PNG, TGA, BMP, JPEG, JPEG-XR, JPEG2000, EXR, RAW, TIF, WebP • Audio: AIFF, MP3, WAV, and more
Multiviewer Output	1 x multiviewer output via HDMI, supporting standard display resolutions up to 1920x1200, with configurable workspaces and viewports
Alpha Matte Support	Assign a second input of identical type as the alpha matte source for NDI® output
Signal Monitoring	Integrated waveform and vectorscope, full field rate with digital calibration, color preview and support for ITU-R Rec. 709
Processing	Video: 8-bit and 10-bit YUV 4:2:2 Audio: 48 kHz
Genlock	Genlock over IP as per SMPTE ST2059-2
A/V Standards via SFP+	• Serial digital component 4:2:2 video: SMPTE ST 259M, ST 292M, and ST 425-AB • Support for 16-bit, 20-bit, and 24-bit audio streams
NIC	2 x 10 Gigabit NIC (IEEE 802.3ae; optical) • MSA-compatible SFP+ transceivers supported 2 x 1 Gigabit NIC
Discovery and Registration	• NDI® native • AMWA NMOS
Control and Management	• Multicast/Unicast • IGMPv2 support • Static IPV4 addresses • DHCP • Generic packet interface for in-band control
System Physical	1RU chassis with 280W redundant PSU • 19.0 x 1.75 x 16.75 in (48.3 x 4.5 x 42.5 cm) with rack ears attached

NewTek NC1 Studio I/O Module

High-level description
The NewTek NC1 Studio I/O Module is a hybrid SDI/IP video system that provides eight video channels configurable for input, output, or a combination of both, and integrates with compatible systems and devices across your network to expand possibilities for switching, streaming, display, and delivery in your production workflow.

NewTek NC1 Studio I/O Module Backplane

Subject to change without notice.

Studio I/O Modules Product Highlights

Complete your current workflow or create an entirely new one. From increasing your available inputs and outputs, to connecting established and emerging technologies, to linking locations across your network, the NewTek NC1 Studio I/O Module is a universal solution that adapts to your production needs.

- Translate up to 8 compatible video signals in any supported resolution to SDI or NDI® for input, output, or a combination of both
- 8 x 3G/HD/SD SDI video connections via DIN 1.0/2.3, optionally configurable for dual-channel 4K Ultra HD at 60 frames per second via 3G-SDI quad-link grouping
- Built-in video server functionality with extensive file format support, including full-resolution 4K UHD playback
- Real-time input, conversion, and transmission of common IP video stream formats, including RTMP, RTSP, and HTTP
- Flexible audio integration supporting input and delivery of digital, analog and network audio, including Dante™ and AES67*
- Native-resolution recording of local SDI input sources to external or network attached storage for archive and post-production
- Dedicated multiviewer with selectable workspace layouts and customizable viewports
- Remote control and monitoring from the web browser of any compatible networked device, including iOS and Android devices
- Precision color calibration with independently configurable color correction tools and integrated waveform and vectorscope
- Integrates with compatible systems and devices across your network for switching, streaming, display, and delivery
- Stack modules in a single location or station in multiple locations to meet the demands of your productions
- Low-profile 1RU chassis with redundant power

  Dante™ and AES67 require compatible virtual sound card licenses (sold separately)

Studio I/O Module Technical Specifications

Local Video I/O	8 x 3G/HD/SD-SDI connections via DIN 1.0/2.3, configurable for any combination of inputs and outputs, including single-channel or dual-channel 4K UHD (Ultra High Definition) input and/or output via 3G-SDI quad-link grouping
Network Video I/O	8 x NDI® inputs 8 x NDI outputs
Media	Support for up to 8 simultaneous channels of integrated media playback, configurable per channel, and available for NDI and SDI output
IP Video Input	Support for a range of video over IP input sources, including RTMP, RTSP, and HTTP streams
Multiviewer Output	1 x HDMI or DisplayPort interface supporting standard display resolutions up to 1920x1200
Local Audio I/O	8 x SDI embedded
Network Audio	• Native support for network audio input and output via NDI • Embedded audio supported for all NDI input and output video signals • Integrated support[1] for Dante™ networking protocol from Audinate® • Support for AES67 protocol via compatible WDM audio drivers[2] [1] *Requires Dante Virtual Soundcard license from Audinate (sold separately)* [2] *Requires third-party virtual sound card license (sold separately)*
Recording	Support for up to 8 recording channels via IsoCorder™ technology • QuickTime® (XDCAM HD compatible, 4:2:2 encoding, 24-bit audio, with timecode) [3] • Supports capture of local SDI input sources with independent and group control • Supports recording to external storage via USB 3.0 • Supports shared storage integration and third-party partner solutions [3] *QuickTime Player not required for playback in common NLE applications*
Grab	Grab full resolution, deinterlaced still images from external video sources
Supported SDI Formats	• 2160p: 59.94, 50, 29.97, 25, 24, 23.976 • 1080p: 59.94, 50, 29.97, 25, 24, 23.976 • 1080i: 59.94, 50 • 720p: 59.94, 29.97, 25, 24, 23.976 • 576i 50 • 480i 59.94
Supported Media File Formats	• Video: AVI, DV, DVCPro, DVCProHD, FLV, F4V, H.263, H.264, MOV, MKV, MJPEG, MPEG, MP4, WMV, WebM, and more • Image: PSD, PNG, TGA, BMP, JPEG, JPEG-XR, JPEG2000, EXR, RAW, TIF, WebP • Audio: AIFF, MP3, WAV, and more
Monitoring	Integrated multiviewer display with configurable workspaces and viewports
Signal Monitoring	Integrated waveform and vectorscope, full field rate with digital calibration, color preview and support for ITU-R Rec. 709
Processing	Video: Floating Point, YCbCr +A 4:4:4:4 Audio: Floating Point, 96 kHz
A/V Standards	• 4K UHD video conforms to SMPTE 2036 (UHDTV1 using Square Division Quad Split) • 3G-SDI video conforms to SMPTE 424M (Level A) • HD-SDI video conforms to SMPTE 292M • SD video conforms to SMPTE 259M and ITU-R BT.656 • Analog audio levels conform to SMPTE RP-155
NIC	2 x 1 Gigabit NIC
System Physical	1RU chassis with 280W redundant PSU • 19.0 x 1.75 x 16.75 in (48.3 x 4.5 x 42.5 cm) with rack ears attached

Reference

NewTek TriCaster 2 Elite Video Mix Engine Backplane (3RU)

Subject to change without notice.

Ordering Information

TC2E3RU	**TriCaster 2 Elite hardware platform (3RU w/redundant power)**
14S	**4 Stripe Control Panel** (ships on a pallet, can only ship via freight)
12S	**2 Stripe Control Panel****
NC1I/OIP	**NC1 I/O IP** **NOTE: Purchase of Professional Service hours required for setup of NC1 I/O IP. Exact amount of PSP hours to be determined after mandatory pre-sale consultation with NewTek.**
NC1I/O	**NC1 I/O - Studio I/O Module (8-channel)**** NOTE: Mini BNC to BNC cables/adapters not included.**
RR2RU3RU	**Rack Rails (available for TriCaster 2 Elite, TriCaster TC1, TriCaster TC1R3, TriCaster TC410 Plus, 3Play 3P1,) Note: For use with round-hole broadcast racks only, not generic server racks.**
RR1RU	**Rack Rails for 1RU (available for NC1I/O, NVG1-D, NVG1-S, TSVS-4000, TSVS-100 and MDS1) NOTE: For use with round-hole broadcast racks only, not generic server racks.**
	Professional Services Plan (Recommended but not required for TriCaster 2 Elite)
TC2EPSP-10Hour	**10 Hour Professional Services Plan - A minimum of 3 weeks notice required**
TC2EPSP-20Hour	**20 Hour Professional Services Plan - A minimum of 3 weeks notice required**
TC2EPSP-50Hour	**50 Hour Professional Services Plan - A minimum of 3 weeks notice required**
	NC1 I/O Parts
zHDBNC9PK	**HD-BNC to BNC Resell 9 Pack**
zHDBNC	**HD-BNC to BNC Cable (single)**
	4 Stripe Control Panel Custom Shipping Crate
14SCMC	**4 Stripe Control Panel Custom Shipping Crate**
	ProTek (Recommended but not required for TriCaster 2 Elite)
PTTC2E	**ProTek for Video Mix Engine (initial 2 year coverage)**
PT4S	**ProTek for 4 Stripe Control Panel (initial 2 year coverage)**
PT2S	**ProTek for 2 Stripe Control Panel (initial 2 year coverage)**
PTNC1I/OIP	**ProTek for NC1 I/O IP (initial 2 year coverage)**
PTNC1I/O	**ProTek for NC1 I/O - Studio I/O Module (initial 2 year coverage)**

PTVMC1OUT	**ProTek for Output Module (initial 2 year coverage)**
PTNC1IN	**ProTek for NC1 IN - Studio Input Module (initial 2 year coverage)**
PTIN	**ProTek for Input Module (initial 2 year coverage)**