Christie
Pandoras Box



CHRISTIE®

Real-Time Media Compositing

Christie Pandoras Box

You've got the skills. We've got the tools.

Christie ® Pandoras Box is the award winning real-time video processing and show control system that gives users complete control over the entire workflow - from project conception to final realization.

Pandoras Box helps maximize efficiency and enables you to combine a virtually unlimited amount of creative possibilities with great usability and reliability. It's a powerful set of tools that enable the creation of amazing visual experiences.

One idea. One system. One successful production.



Venue Site previsulization with UV-mapped 3D objects.

Product Highlights

Multi-User Control

Benefit from the combined efficiency of multiple operators. Split workloads into different tasks like warping, content encoding and timeline programming or simply work simultaneously on the same sequence.

Blind Programming / Blind Preview

Using the Multi-User feature, blind programming enables users to edit timelines without effecting the current video outputs. Changes to sequences can therefore be made with a full local preview without the risk of interfering with the live show.

True 3D Environment

Christie Pandoras Box offers a true 3D compositing space in which both objects and plane elements can be aligned for projection mapping or real-time 3D stereo playback scenarios at high frame rates.

FX Engine & 3D Particle System

The Aeon effects engine enables users to create and combine an almost unlimited number of dynamic effects. FireFly allows for the creation of elaborate real-time particle effects in a true interactive 3D compositing space. Various emitters can be set up and applied with forces such as Wind & Gravity, synchronized across any number of outputs on multiple client systems.



EROS RAMAZOTTI TOUR 2010 - Video Design by Olivier Goulet

Interactive Content & Control

The preview window is the centralized control area for compositing, warping and any kind of content interaction. Additionally, the connected output devices, such as touch screens, can directly interact and trigger actions within the content.

Instant Warping / UV Mapping

The warping process and its features are directly integrated into the Pandoras Box render engine. Within the preview, the user has direct access to manipulate FFDs and vertices in a 3D space to match the projected image with the physical screen setup. Furthermore, UV maps can be edited on-the-fly to arrange content accordingly. Even perspective UV mappings can be realized by using the preview and its interaction modes.



Integrated warping tools within the Pandoras Box Preview.

Dynamic Web Browser

Any Pandoras Box layer can display HTML-based web content with full Java script support. Interactive content is easily used thanks to the layer mouse and touch input. The included Webserver allows direct Java script access to all SDK commands and functions.

FluidFrame Technology

FluidFrame is a groundbreaking signal processing algorithm that offers a smooth cross-conversion that can take any input and output framerate, supporting both interlaced and progressive sources and clips.



Editable Multi-View and sequence programming.

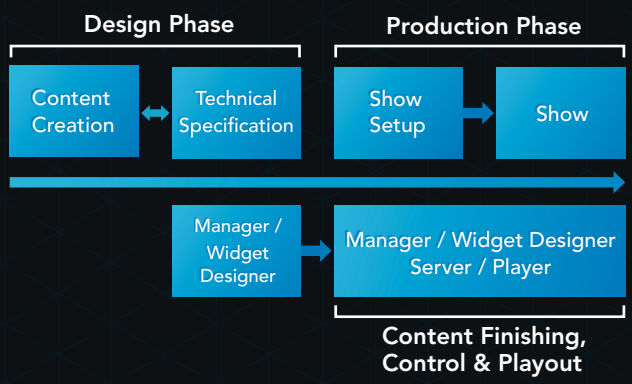
Console Mode & Advanced Patching

With the dynamic layer structures, users can easily add parameters and effects to any layer. In order to facilitate the control, users can start Pandoras Box in a dedicated console mode or simply create and extend the DMX library from within the interface. This means that any parameter can be individually patched.

ASIO Multi-Channel Audio

The Pandoras Box Manager Software supports ASIO audio interfaces and offers synchronized multi-channel audio playback. Both audio inputs and outputs can be delayed and freely routed to distinct or common channels.

Project Workflow End-To-End



Christie Pandoras Box closes the gap between the design and production phase, resulting in a perfectly aligned workflow environment.

Real-Time Media Compositing

Christie Pandoras Box Server

Creative. Scalable. Reliable.

Christie Pandoras Box Server is the flagship of the Pandoras Box suite. It combines the full feature software set with the flexibility and reliability of a powerful hardware platform for 24/7 use to fulfill all needs for maximum creative results.

It is a turnkey solution that perfectly unites state-of-the-art rendering technology with intuitive media and show control. A high-quality server featuring the most powerful and versatile render-engine offers real-time compositing in 3D and allows for projection onto any shape and any surface.



Christie Pandoras Box Server

3D Projection Mapping / Object Import

Enjoy the ease of setting up 3D projection mappings by taking advantage of the flexible and cascaded 3D environment. Import and manipulate 3D objects to quickly arrange virtual cameras to match projector positions and orientations. For even faster setup times, a marker-calibration can be applied to aid the set-up process.

Unlimited Video Layers / Effects

Unlimited video layers enable the user to structure the programming according to specific needs. Virtual three-dimensional lights apply realistic reflections and shadows to objects and plane elements. The unlimited amount of effects per layer or outputs underline the flexible advantage of a real-time compositing system.

Supreme Video Resolution / High Frame Rate

Benefit from virtually unlimited Image Sequences and Videos within the Pandoras Box Server system. Extreme resolutions and unique image ratios are supported with no further need of conversion or splitting processes. High frames rates, like 120Hz, are perfectly synchronized within a single or multiple servers.



BLUE PLANET SHANGHAI EXPO - courtesy of TRIAD

Scalable Hardware Playback Systems

Christie Pandoras Box Player

Versatile. Powerful. Robust.

The Christie Pandoras Box Player hardware combines the versatility of the software only solution with multiple outputs and industry leading graphics power. The Pandoras Box Player is a cost-effective solution perfectly suited for permanent installations and high definition multimedia displays.



Christie Pandoras Box Player

Multiple Outputs and Powerful Features

With 8 video-layers, 8 FX per layer and unlimited graphic-layers, it is quick and easy to program and arrange content. The Aeon visual effects engine and 4K playback turn the Pandoras Box Player into a powerful tool for creative projection, design and installation projects.

Synchronized 4K Playback

The unique Pandoras Box network based adaptive frame synchronization feature allows multiple systems to run automatically in sync. An optional SMPTE Link interface can be used to sync to external sources.

2D Workspace

Featuring a 2D compositing pixel-based environment, Pandoras Box Player is ideal for image compositing and timeline programming. Blend, map and mask any surface with the built-in warping techniques to correct for off-angle distortions accurately on-the-fly.

Output Correction

Each output features multiple correction parameters for individual output configurations. The dynamic Aeon FX system allows for setting up individual effects and color correction per individual output. Warps and keystone corrections can be applied to the output as well as softedge maps.

Quad Output

Pandoras Box Player comes with up to 4 independent outputs which can be individually warped and blended. Mixed resolution setups are possible when different displays are needed.



US PAVILION SHANGHAI EXPO

Christie Pandoras Box Server and Player Systems

Output Channels

Pandoras Box Servers and Players provide a flexible output configuration with 1, 2 or 4 independent outputs.

Each output can be individually warped and blended and allows for mixed resolution setups.

All Servers and Players feature NVIDIA Quadro GPUs.

Hardware Model

LT	480GB (Raid1) storage
STD	1.4TB (Raid5) storage
PRO	2.8TB (Raid5) storage
ULT	5.7TB (Raid5) storage

All Servers and Players are equipped with Intel XEON Processors for maximum stability and performance.

Video Input Options*



Single 3G/HD SDI

Supports all common 3G, HD & SD SDI formats.



Dual 3G/HD SDI

Supports all common 3G, HD & SD SDI formats.



Quad 3G/HD SDI

Supports all common 3G, HD & SD SDI formats.



Single DVI

Single Full HD 1080p60 DVI-I Input.



Dual DVI

Dual Full HD 1080p60 DVI-I Input.

* Two Input-Boards can be configured per Server. Players can be equipped with a single Input-Board.

Audio



Single ADAT & Stereo XLR

1x ADAT digital I/O, supporting 192 kHz
1x SPDIF digital I/O, 192 kHz-capable
1x AES/EBU digital I/O, 192 kHz-capable
Balanced* stereo analog output 24bit/192kHz



Quad ADAT

4x ADAT digital I/O, supporting 192 kHz
1x SPDIF digital I/O, 192 kHz-capable
1x AES/EBU digital I/O, 192 kHz-capable
Up to 32 inputs and 32 outputs can be used simultaneously



MADI

1x MADI I/O (optical and coaxial)
1x Stereo Analog Out
Word Clock I/O
Up to 64 inputs and 64 outputs can be used simultaneously

Framelock & Genlock Input



Output synchronization to enable multiple systems to synchronize frame rendering across multiple displays, plus synchronize one or many systems to a common sync source.

10 GB Ethernet



The optional 10GB Ethernet card offers two additional high-speed network ports for faster content and data transfer.

DVI Processor



The DVI processor generates 4x DVI-D outputs or 2x 3G/HD SDI outputs from 2 DualLink DVI Inputs.

SDI Processor



The SDI processor generates 4x 3G/HD SDI outputs from 2x DualLink DVI Inputs.

Flexible Playback Unit

Christie Pandoras Box Compact Player

Small Size. Great Performance.

Christie Pandoras Box Compact Player is an extremely versatile hardware-based media player that is small in size but great in performance, reliability and power.

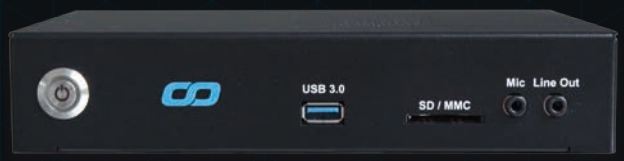
Whether part of a cutting-edge digital signage installation, inside a modern museum, or even on board a cruise ship, the Compact Player is ideal for a variety of different professional playback scenarios.

The Compact Player's Playlist feature makes it easy to play multiple media files in a row without the need of programming separate containers on a timeline sequence.

An unlimited number of Compact Players can be centrally controlled and synchronized via network, using the Pandoras Box Manager Software.

Multiscreen installations and similar setups are also possible with multiple Compact Players.

The robust Compact Player was developed for professional 24/7 use and is built using server grade hardware.



Features

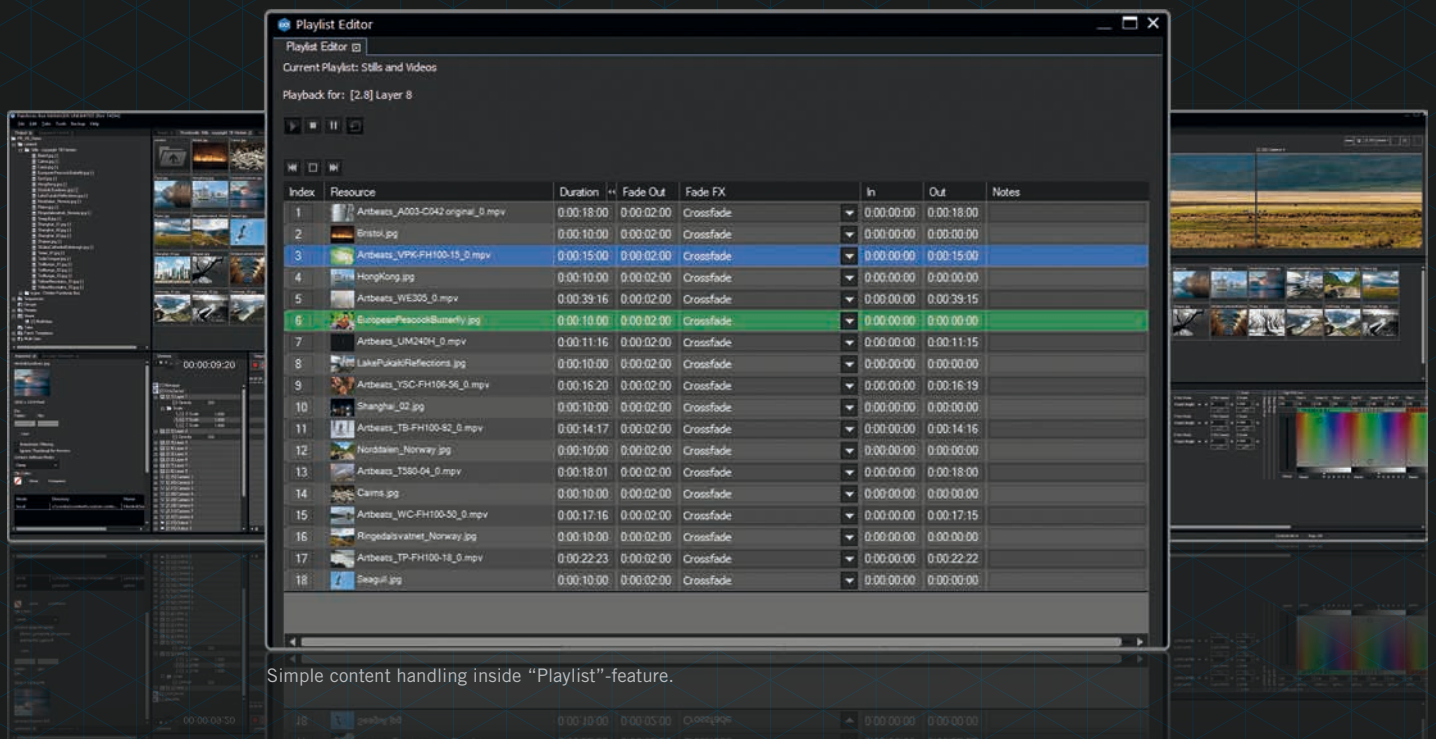
- 1U 1/2 19" Racksize
- Up to 4K Playback
- 4x Video Layers
- 2x Sequences
- Unlimited Graphics Layers
- Interactive Web Browser included
- Control via Javascript possible

Outputs

The Compact Player comes with either 1 or 2 independent outputs. Each output can be individually warped and blended and allows for mixed resolution setups.

Hardware Model

LT	480GB storage
STD	960GB storage
PRO	1.9TB storage



Simple content handling inside "Playlist"-feature.

Software Only Solutions

Christie Pandoras Box Software Player

Powerful. Visionary. Flexible.

Christie Pandoras Box Software Player offers an ideal, cost-effective software solution for professionals with multi-media requirements such as digital signage applications, corporate meetings and various architectural and artistic installations with limited budgets. A minimum of 4 video-layers and unlimited graphic-layers are available to be programmed and arranged quickly and easily.

Aeon easy-to-use dynamic effects as well as 4K playback turn the Software Player into a powerful tool for creative projection and design.

The Software Player can be set up as a standalone playback device, network playback client or used in console mode for direct DMX Control.

Synchronized Playback

Network based adaptive frame synchronization allows multiple systems to run in sync. An optional SMPTE Link Interface can be used to sync to external sources.

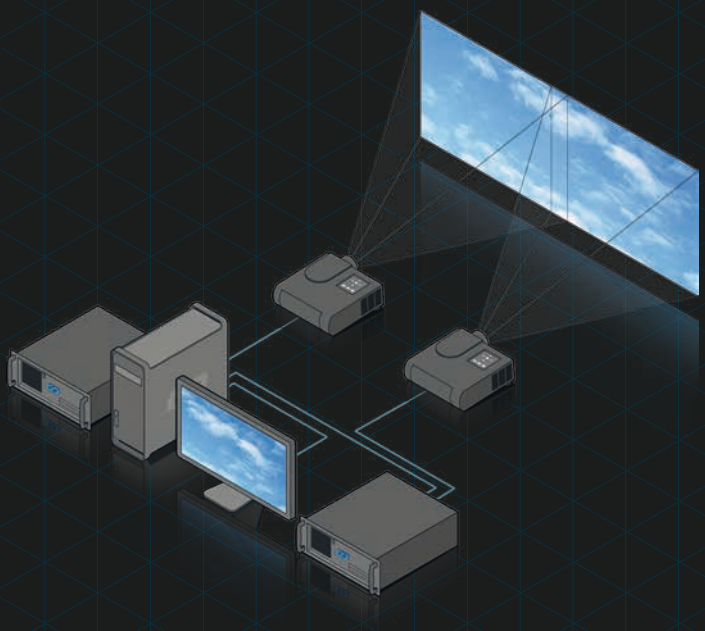
Keystone Correction

The Software Player comes with the patented keystone algorithm that enables you to correct for off-angle distortions accurately on-the-fly.

Softedge Blending & Warping

Either flat or shaped projections can be set up with multiple Software Players. Each output can be blended and warped independently to match any number of geometrical shapes.

No matter what your particular project specifications might be, the Pandoras Box Software Player will perfectly fit your individual requirements.



Softedge Blending Example



STAR TREK THE TOUR - courtesy of Delicate Productions

4K Playback Support

As high-resolution formats have become the standard for large scale projection, all Software Players support up to 4K video playback and output configuration.

Video Formats

The Windows-based system deals with most DirectShow video codecs, including Quicktime. For optimum performance a high definition MPEG Video Engine is included with every Player.

Image sequence playback support is also available for high quality media playback.



SIEMENS MEDICAL - fischerandfriends

Real-Time Effects

Pandoras Box Player systems feature a large number of visual effects including various keying filters accessible to every layer and output, bringing video composition to a new level of creative possibilities.

The dynamic Aeon effects engine allows assigning multiple FX per layer. Aeon chains are created via drag and drop and controlled individually via any combination of timeline, TCP/UDP, Art-Net / DMX Matrix Output. The built-in DMX Matrix rendering allows the creation of customized applications, where LED or lighting fixtures are required to be used as pixels for giant video surfaces.

Direct Control

All Christie Pandoras Box products give you the choice of a large number of available protocols to control the system. You can use a DMX console or unlock the full features of Pandoras Box Player with the built-in timeline or Manager to get full access to all parameters. Select from industry standard protocols like TCP/IP, SMPTE, MSC, Art-Net, SACN, MA-NET, DMX-512 and many more to achieve your goals.



VERTIGO - Zurich

Christie Pandoras Box Player

- 4x Video Layer
- Unlimited Graphic Layers
- 4x Dynamic FX per Layer and Output
- 4x Audio Tracks
- 1x Sequence
- Patented real-time Keystone

Multiple License Support and Multi License Option

Users can also use the Multi License Option, where the output, sequence, video layer and audio track count multiplies by the number of Multi-Licenses. Up to 16 licenses can be applied to a single dongle. For increased flexibility, individual dongles can be combined, for example, two dongles can be used in a single PC system to double-up the output and layer count in DUAL MODE.

Optional Accessories

- DMX Link In USB interface
- DMX Link Out USB interface
- SMPTE Link I/O USB Timecode interface

Real-Time Show Control

Christie Pandoras Box Manager

Direct. Intuitive. Fast.

The Christie Pandoras Box Manager re-defines real-time editing and playback control. This software allows synchronization and remote control of all Pandoras Box media playback products via network.

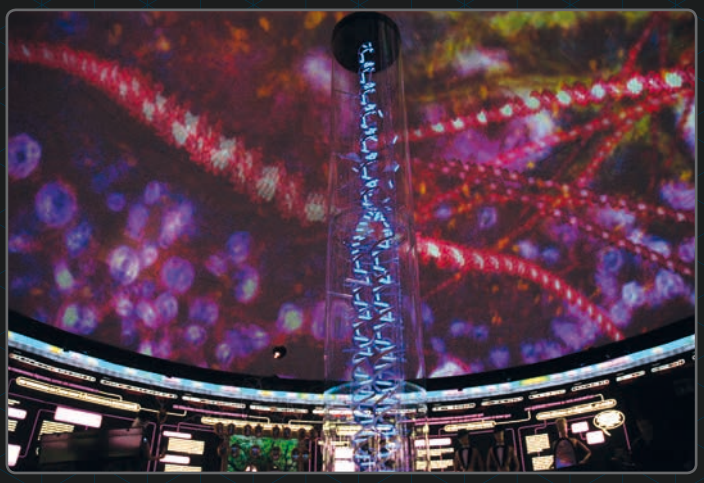
The built-in sequences with its cue and key-frame based time-line interface enables you to control Pandoras Box Servers, Players as well as interfacing with all kinds of external controllers via TCP/IP, Serial RS-232/422, SMPTE, DMX, Art-Net, analog and digital industrial sensors.

Pandoras Box Manager acts as both a remote file manager and a master, synchronizing any connected client system with sub-frame accuracy for demanding applications.

Similar to standard compositing and non-linear editing software solutions, the project orientated user interface is quick and easy to learn.

All Pandoras Box systems share a unique user interface that allows a fast configuration and programming workflow. The interface is context-sensitive and optimized for live applications.

The system is open for multiple input protocols and offers an easy and direct access to all controls. Individual view layouts allow you to arrange the interface according to your needs by creating new tabs and views that can be stored and recalled on the fly.



GENOME – THE SECRET OF LIFE – System Design by Michel Helson

Venue Sites

With Venue Sites, users can navigate through scenes and pre-visualize the final result before any hardware is installed. This results in efficient and productive collaboration while reducing significant costs and time by enabling the pre-programming of complete shows before the physical setup begins.

Audio/Video Export & Recording

The video export offers users to greatly improve their workflow and export entire scenes into high-resolution video contents while having the flexibility of a real-time editing system. Combined with Venue Sites this feature unleashes the power for design and delivering your idea to the customer.
Live video inputs can be recorded and captured from any source up to 2K/HD for further use within Christie Pandoras Box.



Key Features

Multi-User Control

Using separate Pandoras Box Managers, multiple users can gain access to all Servers and Players simultaneously. Timeline programmings can be done at the same time as warping and content encoding. Workflows can be optimized as changes happen simultaneously.

Tracking Backup

When running a setup with multiple Managers, changes to the programming can be synchronized across all interfaces. Other Managers can then fluently take over the system within a back-up situation.

Multi-View

Previewing multiple outputs next to each other in Multi-View offers the possibility to keep track of important displays during a show at a glance. Displaying the fully editable preview in fullscreen helps while warping and for a better overview. Combining the Tracking Backup functionality with Multi-View lets the operator create a remote, fullscreen preview display in order to offload the rendering task from the local Manager.

Pixel-Oriented Workflow

Accurate control over exact positions and sizes of content is crucial to deliver the best quality possible. Pixels can be directly entered not only for layer positions but also for vertices or FFDs while warping. A general focus is set onto the common 2D layout tasks while the powerful 3D environement is only a single click away. Combine the best of both worlds to customize the interface to your needs.

Christie Pandoras Box Manager

- Multi-User control
- 8 independent timelines
- 16 Multi-Channel ASIO Audio Tracks
- Venue Sites
- Audio and Video Recording / Export
- MPEG Encoder Extension

Optional Feature

- Unlimited timelines and unlimited Multi-Channel ASIO Audio Tracks.

Optional Accessories

- Fader Board and Jog Shuttle Controller
- DMX Link In USB interface
- DMX Link Out USB interface
- SMPTE Link I/O USB Timecode interface



Interactive Application Builder

Christie Pandoras Box Widget Designer

Innovative. Versatile. Reliable.

The Christie Pandoras Box Widget Designer is an advanced control surface creation framework, that lets you create dedicated user interfaces and interaction logic by simply connecting visual control components.

A rich feature set for visual node based programming is available to create customized show-control scenarios. Adding simple scripting makes programming more efficient and powerful.



Customized Widget Designer Interface

The great number of features are all based around the idea, that even non-programming specialists should be given the tools to create truly immersive interactive experiences for their customers.

With the embedded node programming environment users can route and set up almost any possible control scenario. Easily interact with sensors and data sources to route input data to any other output protocol such as Art-Net, Midi/MSC, TCP/UDP, DMX or RS-232/-422 devices.

Create custom interfaces for clients to interact with the system, or create individual sets of faders and cue controls for your specific show control demands.

Easily create large scale multi-touch applications for several users who are then able to interact with the content. Scaling, rotating and moving video content can become an interactive experience.

HTML User Interface

The Widget Designer interface is based on HTML-5 and features the possibility to style and manipulate complete pages or single widgets due to internally used CSS3 styles. Those can be imported and applied to the local user interface. Web designers can easily style customized control panels for a variety of different users and applications.

Web Server

The integrated web server, which also drives the native Widget Designer interface, can publish all created pages to external browsers on any kind of device. Remotely control shows with your customized self-designed interface from a tablet, smart phone or computer.

Unlimited Web-Clients Option

The web server can host multiple sessions of Widget Designer. This means that multiple pages can be controlled independently of one another from an unlimited amount of clients. This is perfect for installations where several remote controls are needed with a centralized control station.



Max-Planck Interactive Visitor Center – designed by VITOLI and Schukat & Reuter

Composite Nodes

A compilation of numerous nodes can be integrated in a re-usable custom node for further use. This drastically reduces the amount of required nodes, makes changes to the system much more efficiently and enhances the overview when it comes to extensive node systems.



Web Server Application Example

Multiple Windows

Approach different tasks with different windows. With the option of multiple windows, one can split the technical backend for triggering the show from another window which is remotely driven by a CEO or visitor. View the users interaction in a separate window while working in a different one. Additional screens can run divergent resolutions to match the specific project needs.

Scripting Language

A versatile but simple and easy to learn scripting language opens up another level of possibilities and effectiveness. Widgets and Pandoras Box devices can be scripted along with external protocols and sources. The improved scripting methods guide the user when it comes to errors, adds local variables and unifies the overall scripting convention to finally reduce production times.

Pandoras Box Integration

The Widget Designer can be directly used as a sequence device as part of the Pandoras Box GUI. One also has the option of reading out a great variety of Pandoras Box values.

External Devices / Protocols

Make use of an extensive amount of supported protocols and external devices. Camera tracking and motion detections can be used to trigger network-based protocols or can be translated to interact with file formats. Read and edit spreadsheets to update projected content or use data bases to schedule shows. The Widget Designer is capable of uniting combinations only imagined before.



Customized Widget Designer Interface

Christie Pandoras Box NET Link

Connect. Switch. Calibrate.

The Christie Pandoras Box NET Link product family makes it possible to convert a great number of external inputs into network data. Each NET Link unit can be equipped with up to two modules that can be freely configured.

Another very important role played by NET Link products is enabling the connection between switching relays, sensor input and output and Widget Designer control software.

Depending on specific project needs, the NET Link products are designed to be equipped and configured in many different ways. Reading industrial sensor data for screen tracking scenarios is only one possible example.

One of the most innovative product options is the use of the Fiber Link model as an ingenious, marker-based calibration device for the Pandoras Box Warper tool.

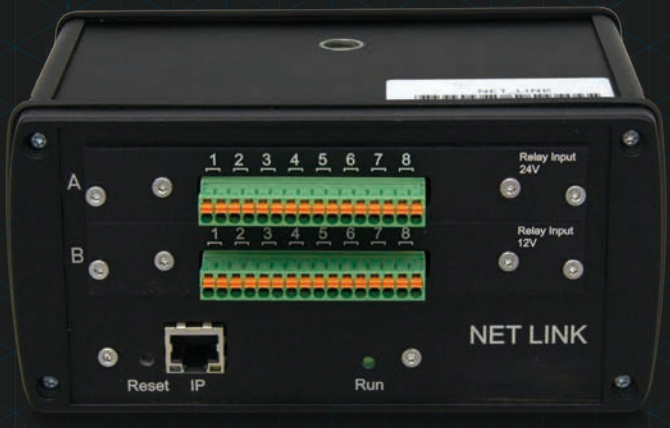
Re-calibrating projector positions has never been more reliable and user friendly.

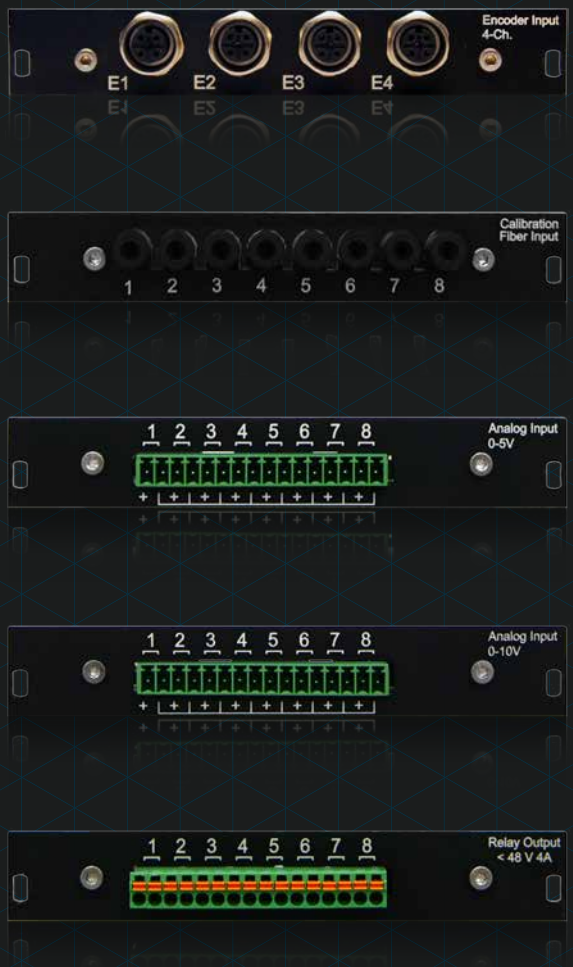
Fixed installations involving projections can now be set up in a way that allows for the creation of an exceptionally easy on-the-fly calibration environment, that can be operated even by non-specialists.

Whether inside a theatre, a modern museum or as part of a modern cruise ship's immersive entertainment world, installations featuring a Fiber Link unit can be made both cost effective and easy to maintain on a 24/7 basis.

NET Link Modules

- 8x Calibration Fiber Input
- 8x 0-5V analog, external Power
- 8x 0-5V analog , internal Power for Sensors
- 8x 0-10V analog, external Power
- 8x Relay Digital Input 12V
- 8x Relay Digital Input 24V
- 8x Relay Output 48V 4A
- 4x Digital Encoder Input





Module Examples

Real-Time Tracking Devices

Christie Pandoras Box ID Tag

Unique. Robust. Cost effective.

The revolutionary ID Tags make real-time tracking scenarios not only easier to set up, but also more reliable, more versatile, and more cost-effective.

Interactive projections, camera automation, audio tracking, stage tracking and lighting control are just some of the areas in which this ID Tag offers great benefits and unprecedented flexibility.

Each of the tags can be addressed with a unique ID, which opens up the possibility of up to 256 different unique IDs being tracked in real-time within a single setup.

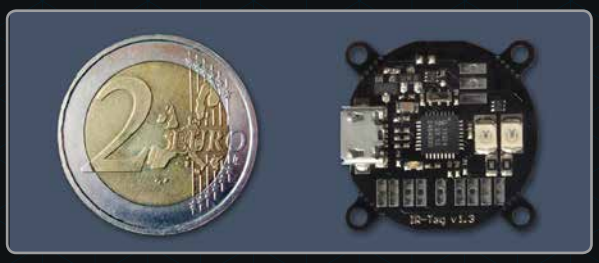
One individual tag has two LEDs onboard and can have between one to three additional infrared LEDs attached to it.

Tracking people or objects this way is achieved using a purely optical transmission system, thus avoiding the many pitfalls of radio control based setups.

The ID Tag is available in two versions:
• A coin sized ID Tag can be easily attached to set pieces, costumes or any other part of a tracking setup.
• A QUAD ID Tag as beltpack with four individual LEDs which can be easily handed out to speakers or attached to scenic props and elements.

Using Widget Designer Software to create the actual control setup, users can choose between different modes, depending on each individual setting and lighting situation.

Christie Pandoras Box Software and hardware products are fully compatible with the ID Tags and are the natural choice for project solutions that feature real-time interactive media playback up to 4K and beyond.



Technical Features

- Maximum number of unique IDs: 256
  Different modes with less IDs are available for faster detection time. 256,128,64,32,16,8,4
- Minimum number of tracking cameras needed for tracking setup:
  One camera for 2D setup, three cameras for 3D setup.
- Camera types suitable for ID tracking setups:
  USB cameras with 100 fps; network-powered-Ethernet cameras with up to 250fps

  Please consult with Tech Support before specifying camera type.





Photographs appear courtesy of Quince Imaging and Christie

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