ARCUS

COMPLETELY CUSTOMIZABLE SURROUND SOUND CONTROL SURFACE

Wheatstone

BROADCAST AUDIO PERFECTIONISTS®

The Surface

A customizable surface that you can tailor to your working style

This 16-fader (or larger) digital mixing console features IP networking and a fully touchscreen-enabled interface that recognizes smartphone-style gestures. The Arcus large-format mixing console is a solid, intuitively laid out surface that's easy to operate.

Wheatstone's top-of-the-line digital mixing console includes AES67 compatibility, touchscreen control, and WheatNet-IP networking for routing and controlling audio anywhere within a TV facility. Available in 16-fader frame sizes on up, the Arcus owes its ease of use to several advances in design and technology not found in other fixed-location audio consoles:

Arcus features a simple tabbed menu on a touchscreen panel, which eliminates a "sea of knobs" for basic functions such as setting talkback, configuring bus matrices, muting mic groups, and managing sources. The Arcus's touchscreen interface that lets you use "pinching" and other familiar smartphone gestures to easily make changes. You can adjust audio EQ by moving a bargraph with your finger, or pinch the waveform to make it narrower.

With all I/O managed through the IP network, the Arcus has no limitations with fixed connection points on the console chassis itself. Any channel can connect to any audio source, using any preferred audio format at any time, whether it's HD/SDI, AES, MADI, AoIP, Analog or TDM.

On the surface, operator prompts provide helpful instructions for guiding you through function changes in order to fast-track live productions. Per-channel OLEDs for displaying all relevant editing and operating functions at a glance are customizable to display the data that you expect in certain locations on the console. In addition, all OLEDs across the board can be grouped together in Expanded Mode to present parameters side-by-side for comparison and adjustment. Drill-down interrogation of functions and settings can show sources, levels, and muting or a quick view of the entire mix-minus matrix in one glance, useful for interrogating specific or groups of busses and any sources or outputs associated with them.

Arcus works with WheatNet-IP, Wheatstone's award-winning AES67 compatible IP audio network with all the necessary broadcast audio tools and controls integrated into one robust, distributed network. WheatNet-IP provides network access to all sources in the network, as well as every destination visible from the console.

- IP networked console
- AES67 compatibility
- Touchscreen interface (multi-touch) on every meterbridge display screen
- OLED displays for editing by the channel, or for side-by-side comparison of settings across the board
- IP network access to any source: HD/SDI, AES, MADI, AoIP, Analog or TDM
- Flexible I/O layering and profiling of channels
- Native IP interface to major production automation systems
- Built-in audio clip player
- USB interface for Flash drives
- Loudness Metering with large LKFS readout and momentary, short-term peak reading and program duration level history display
- Pre-configurable with custom combination of sub-mixes, AUX sends, track outputs, and mix-minuses
- Offline setup software
- Bus-minus (N-1) output for every input channel
- Two 5.1 surround master output busses
- Two stereo master output busses
- Up/down mixing between 5.1 and stereo
- Motorized faders, each controlling two mono, stereo or 5.1 sources
- Faders can be paged together or separately
- Spill function on each fader, allowing each fader to spill out onto adjacent faders
- Full digital audio processing on all inputs and major output busses (EQ, comp/limiter, expander/gate, high/low pass filters)
- Programmable delay applicable to inputs and outputs
- Automatic microphone mixing (AutoMix) for multi-guest panel discussions features variable weighting assignment for each individual speaker
- 99 show presets for complete recall of console setups
- 4 programmable soft knobs per input – can be assigned any control function on the console
- 8 fully programmable switches per input for implementing custom routing and switching functions
- 2 full color OLED displays per input for showing programmable function settings and parameters
- 4 user presets for programmable controls and on-the-fly recall at the touch of a button
- Function Expand feature for mapping EQ, dynamics, AUX and mix-minus functions to physical controls at the touch of a button
- Interrogate function for at-a-glance visibility of channel settings and assignments
- Full color OLED display above every fader for showing channel status and source names
- Layer slide function (with isolate) for working with fader channel numbers greater than the physical fader count

Wheatstone ARCUS

The Details

everything you need to mix - right there at your fingertips

Input Module

Isolate

At the very top of each channel is a button that lets you exempt that channel from global preset changes (more about this below). This way you can have channels set up that are protected, but still use global functions to alter other channels' setups.

Automatic Microphone Mixing

When airing a panel discussion, forum, or other program where many mics are located closely together, always leaving all mics open will result in an ugly, comb-filtering effect that makes the room sound hollow. The operator must constantly pay attention to the discussion and keep unused mics pulled down. There are many opportunities for errors which are obvious to the audience. Automatic Microphone Mixing takes this difficult task out of the hands of the operator.

By engaging this feature, the console monitors the level coming from each mic and automatically reduces the gain on mics not being addressed. The level of the active mics is determined by the weighting assigned to each by the weight sliders in the Automix screen. This allows hosts to be assigned a higher weight in order to speak over guests in a lively discussion. It also allows "loud talkers" to be assigned a lower weight so they are more evenly balanced with other speakers. Conversely, "soft talkers" can be assigned higher weight to compensate for their lower level. The Automixer also does gain sharing, so the overall level will not exceed nominal levels when multiple participants are speaking at once.

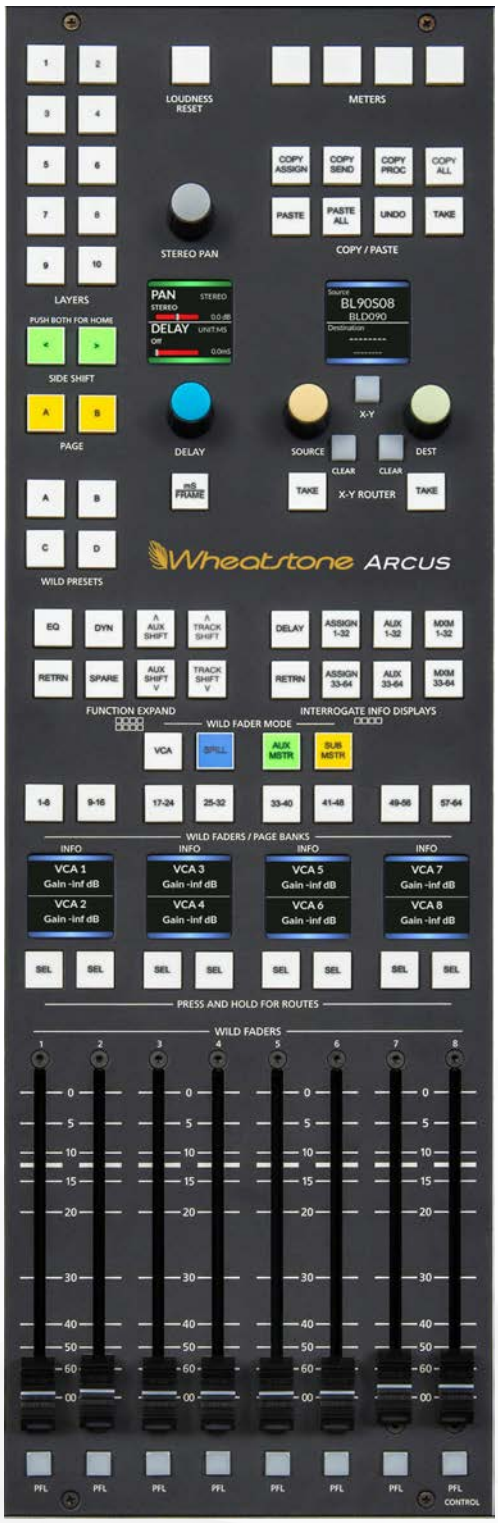
Wild Functions

There are two rows of four OLEDs, each with four buttons and two knobs. Each row can be programmed to control a number of selectable functions. Once programmed each setup can be saved as a WILD PRESET (on the Control Panel) to facilitate quick recall of often used functions. Or, using FUNCTION EXPAND (also on the Control Panel), they can represent all the EQ or Dynamics functions associated with the selected channel, spread over all eight displays, providing a convenient way to adjust everything without having to page through menus.

Spill

Usually, it's extremely convenient to be able to control the level of an entire 5.1 surround source package with a single fader. Sometimes, however, it is necessary to individually trim the levels within that package. For example, we might need to knock down the subwoofer level, or increase the center channel gain slightly. On the Arcus, this is easy. Just press the "Spill" button on the fader. Instantly, the six signals of the 5.1 source will be spread across six separate faders and labeled for you, and the motorized faders will snap to the current levels. Make your adjustment, turn spill off, and everything switches back to normal.

Control Module



Layers and Pages

Arcus is equipped with ten layers, each with two pages for each channel. Each layer represents a complete setup of your entire surface. You have the ability to select each of those ten setups simply by pushing the associated button. All your inputs, mix-minuses, aux-sends, EQ, processing - the works - times ten. Switching to another layer gets you to another complete setup. Within the layer, switching to a different page lets you access a separate set of functions for that/those channel(s).

Any source, anywhere on the network, can be dialed up on any or many of those channels at any time. And wherever that source is used, bring its last-used channel settings with it. This makes the Arcus a powerhouse console.

System Routing

Full control over crosspoint connections is a must in any router based system.

The Arcus System Router section allows signal Sources and Destinations (logically grouped according to Location) to be assigned with virtually unlimited flexibility. It operates in two modes:

In STANDARD MODE the displays respond to any Set function invoked on the surface. If the Set applies to an input channel the destination display shows the output routing for that channel's Bus Minus output. If the Set function applies to an output bus, the Destination display shows the output routing for that bus. In both instances on the fly changes can be made quickly via the scroll knob and take switch.

In Full XY MODE, any system source can be sent to any system destination. The lists of signals that are visible (and therefore routable) can be programmed through software so critical crosspoints remain protected.

Wild Faders

On the Control Panel, the 8 faders at the bottom can be just about anything you like. The OLEDs reflect the functionality of however you have this section configured. There are four modes preconfigured. A spill mode lets you use the Wild Faders for the spill function, instead of spilling to adjacent faders in the input section.

Master Module

USB Ports

"USER" allows you to store and recall your settings on a USB Flash/Thumb drive, making them portable. Freelancers can bring in their USB Flash drives week after week or show after show for instant recall of console settings, configurations and layering preferences.

"CLIP" accesses the built-in audio clip player and allows you to plug in a Flash/Thumb drive with audio clips you'd like to have access to. Set up a playlist and control it right from the console. The eight HOT CLIP SELECT buttons makes it a snap to trigger any of eight pre-selected clips.

Talkback

Arcus has extensive talkback capabilities. Eight talkback busses preset destinations let you communicate with ease to many locations. And it's easy to configure, courtesy of its OLED showing each TB destination.

Programmable

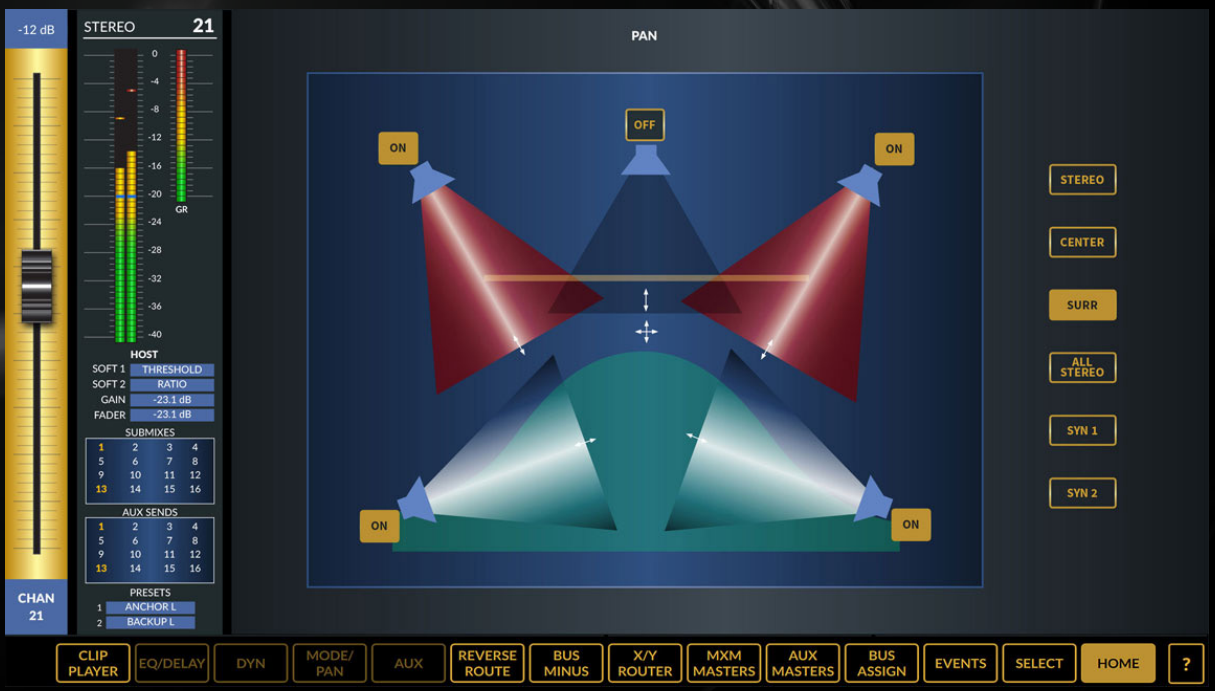
Whatever you can dream up, you can assign to one of these 16 programmable buttons.

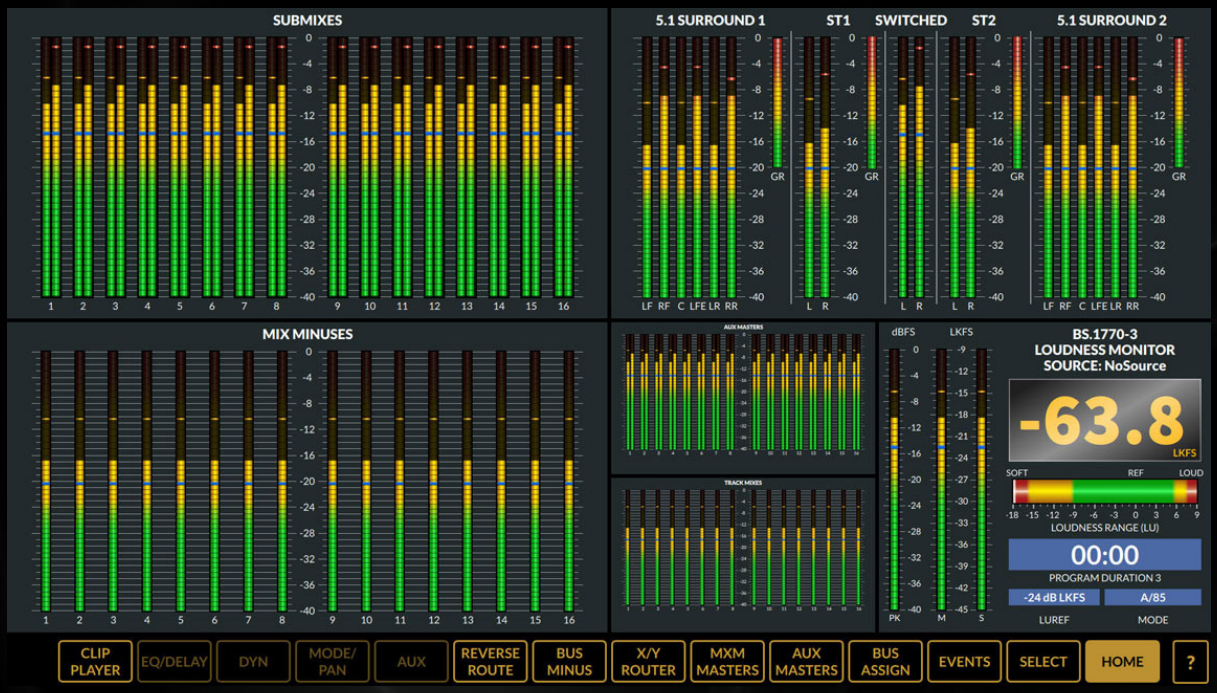
Four Master Busses

Studios 1-3 and Control Room busses let you have different mixes for different purposes to monitor your surround and stereo mixes. Each Monitor output can select between 6 Preset Sources plus a full dialup source selection. Additionally, you can select from three different speaker outputs in the control room for convenient A/B/C evaluation monitoring functions.

Every Large Display is Dynamic and Touchscreen Enabled

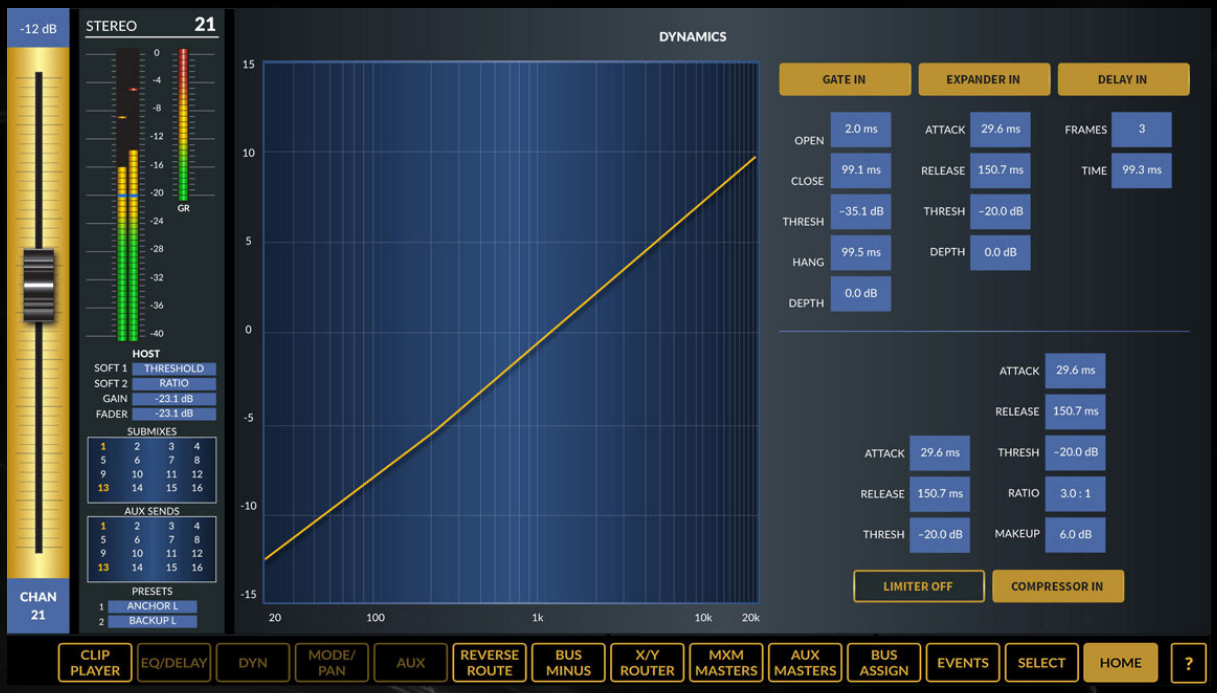
The meterbridge on Arcus is comprised of touch-enabled LED displays that give you dynamic information about any and all functions. These reflect whatever actions you are applying to the console and update in real time with lightning fast refresh rates. These touchscreens allow you to use the standard pinch and zoom gestures you are familiar with.





Loudness Monitoring

The meterbridge LOUDNESS meter has the required momentary, short-term, and integrated metering as well as a peak reading meter. The Loudness Range meter provides a level history over the course of your program with a Program duration display and a reset control on the Arcus surface. The Loudness Meter can be set to read any of the Stereo Program or 5.1 Program busses. The large LKFS readout helps your operators maintain CALM compliance, avoiding more noticeable downstream corrections.


-12 dB
STEREO
21
GR
HOST
SOFT 1 THRESHOLD
SOFT 2 RATIO
GAIN -23.1 dB
FADER -23.1 dB
SUBMIXES
AUX SENDS
PRESETS
1 ANCHOR L
2 BACKUP L
CHAN 21
DYNAMICS
GATE IN
EXPANDER IN
DELAY IN
OPEN 2.0 ms
CLOSE 99.1 ms
THRESH -35.1 dB
HANG 99.5 ms
DEPTH 0.0 dB
ATTACK 29.6 ms
RELEASE 150.7 ms
THRESH -20.0 dB
DEPTH 0.0 dB
FRAMES 3
TIME 99.3 ms
ATTACK 29.6 ms
RELEASE 150.7 ms
THRESH -20.0 dB
RATIO 3.0 : 1
MAKEUP 6.0 dB
LIMITER OFF
COMPRESSOR IN
CLIP PLAYER
EQ/DELAY
DYN
MODE/ PAN
AUX
REVERSE ROUTE
BUS MINUS
X/Y ROUTER
MXM MASTERS
AUX MASTERS
BUS ASSIGN
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-12 dB
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SOFT 1 THRESHOLD
SOFT 2 RATIO
GAIN -23.1 dB
FADER -23.1 dB
SUBMIXES
AUX SENDS
PRESETS
1 ANCHOR L
2 BACKUP L
CHAN 21
EQUALIZATION
40 Hz
HPF IN
FREQ 12 Hz 350 Hz 2 kHz 8.5 kHz 10 kHz
OCT 1.4 0.9 1.1 1.5
LPF OUT
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CLIP PLAYER
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MXM MASTERS
AUX MASTERS
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EVENTS
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HOME
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Gibraltar IP Mix Engine with WheatNet-IP

The processing power behind Arcus – brains, brawn and futurability

Designing from the ground up meant considering not only how things function but where they live. Given the technology we have today, and considering what's on the horizon, it only made sense to take a completely modular approach. This provides us with the ability to create incredibly powerful devices with unimaginably small footprints. Since all function is in soft/firmware, it also gives us the capability to ensure that your investment in our technology today will last well into the future. In other words: Wheatstone = incredible ROI.

Meet Gibraltar

The Gibraltar® IP Mix Engine is the powerhouse of Wheatstone's AoIP consoles. Its modular design uses multiple Gibraltar DSP cards to provide the mixing, bussing, I/O, and processing power which the control surface presents to the operator. The amount of DSP processing available can be scaled to the size and complexity of the intended installation and to allow for future expansion.

The Gibraltar IP Mix Engine has an internal, modular power supply and has room for a second one for full power redundancy. A "hot standby" Gibraltar DSP card can also be installed and will seamlessly take over the functions of any failed DSP card.

More than enough DSP to do the job

There are 1,024 channels of processing available. Sound like a lot? It is! For a modern studio, consider that for every input you'll need a minimum of 6 channels of processing for 5.1 surround as well as 2 channels for stereo processing. Add to that processing for all major output and monitor busses (stereo and surround mains, submixes, aux sends, mix-minus, tracks, control room, studios and headphone feeds) and you'll see that it adds up to a lot.

Extreme flexibility

With over 10,000 audio input sources simultaneously available on the network, you'll never have to repurpose your inputs again. This kind of unrestricted access means your throughput is greatly streamlined AND your flexibility options are SIGNIFICANTLY increased.

No blockouts

Of course having a ton of simultaneous inputs for a single production is not an every day occurrence, but since you have completely unrestricted integrated router flexibility, having all faders available to dial up whatever mix you need means the days of having to block out channels based on input type are a thing of the past.

The Gibraltar IP Mix Engine provides Wheatstone's line of audio consoles with direct connectivity into WheatNet-IP, an AES67 compatible IP audio network with all the necessary broadcast audio tools and controls integrated into one robust, distributed network. Among the benefits of WheatNet-IP networked audio consoles are:

- With all I/O managed through the IP network, the IP console has no limitations with fixed connection points on the console chassis itself. Any channel can connect to any audio source, using any preferred audio format at any time, whether it's HD/SDI, AES, MADI, AoIP, Analog or TDM.
- No soundcards needed. Listen to any crosspoint in the network and move audio around the studio, without a single soundcard.
- Share VTRs, mics and mixing consoles across one common IP platform, whether for live broadcast or post-production.
- Based on native IP, for directly transferring multiple stereo channels from the audio workstation to the console with no A/D/A conversion required.
- Direct connectivity to automation. Talks IP to all of the commonly used production automation systems. No serial data conversions needed.
- 24/7/365 reliability. Each amazing I/O BLADE in the WheatNet-IP network is self-aware, and can reconfigure itself in an emergency. In fact, each BLADE in the network can recover settings for your entire studio operation!
- Changes are a lot easier. Reuse studios for multiple purposes. Instantly change mic feeds, IFB connections and processing settings, either on the fly or using presets.
- Finally, a way to control audio. Logic controls follow audio on the same cable. Pick up a mic feed and the processing settings for that mic in Studio A same as in Studio B.
- AES67 compatible.
- All sources in the network are accessible, and every destination visible from the console.

Why WheatNet-IP Audio Networking?

WheatNet-IP is more than just an IP network that routes audio within a TV facility. It is a full system that combines a complete audio tool kit, an integrated control layer, and a distributed intelligent network that takes full advantage of IP audio.

By combining these three components seamlessly into one system, we can deliver the following:

- A distributed network of intelligent I/O devices to gather and process audio throughout your facility
- Control, via both hardware GPI and software logic ports, that can be extended throughout the plant as well
- Rapid route changes via both salvos and presets to instantly change audio, mic control, and tallies between sets
- A suite of software apps and third party devices that all communicate via the common gigabit IP interface
- True plug-and-play scalability – devices are easily added to the IP network
- Triggered crosspoints to create routable IFB throughout the facility

Gibraltar IP Mix Engine features:

- IP network interface and mix engine for Wheatstone's IP networked consoles
- Up to 1024 DSP processing signal paths (any combination of 5.1, stereo, and mono channels)
- Can apply processing functions to 768 input paths and 256 mix output paths simultaneously
- Flexible mixing architecture allows over 500 mix busses
- 4 band fully parametric EQ with HF/LF peaking or shelving
- 3 parametric filters
- Parametric compression, limiting, and gating
- 16 control channels for keying/ducking/sidechain applications
- Panning and surround imaging control
- Talks native IP to standard production automation systems. No serial data conversions required.
- Individual input and output delay capability; up to 660mS per path
- AES67 compatible

Extending Your IP audio network

There's a world of Wheatstone BLADEs for you to put to work.

I/O BLADEs

I/O BLADEs are access points on the WheatNet-IP Intelligent Network, converting each hardware physical input – audio or logic – to a data stream on the network, and converting data streams to hardware digital outputs. They provide the means of interfacing and controlling all of the audio equipment on your network.

The IP88A (analog), IP88D (digital), IP88AD (analog/digital) and IP88M (mic level) BLADEs handle your standard audio I/O requirements. Each has 8 stereo channels, 16 mono channels, or any combination totaling 16 discrete channels. The A/D versions are half analog, half digital. And the mic BLADE has 8 XLR inputs with high-quality mic preamps.

Audio Processing BLADEs

Placing a processor everywhere you'd like one has been costly and impractical. Until now. One Aura8-IP gives you up to eight processors to use as you wish. Use it as a standalone processor with analog and digital inputs or make it a part of your WheatNet-IP network. Either way, the Aura8-IP is a powerhouse.

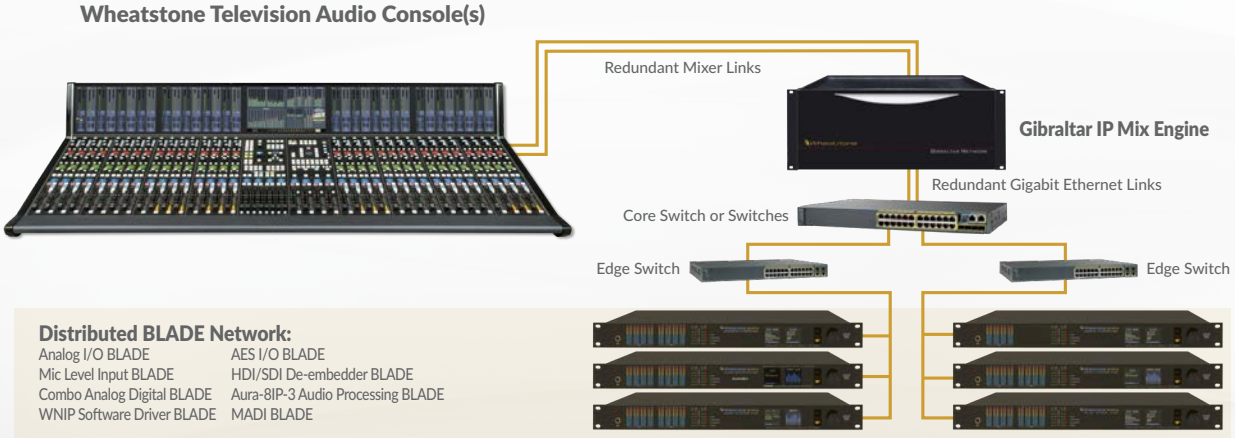
The M4-IP Microphone Processor BLADE combines four high-quality microphone preamps, four channels of Vorsis embedded microphone processing, and a WheatNet-IP BLADE interface, allowing you to place four microphone inputs anywhere in your WheatNet-IP Intelligent Network. The preamps and processors are accessed and controlled from any point on the network via its Windows-based GUI.

Special Purpose BLADEs

Another I/O BLADE is the MADI BLADE, which converts a 64-channel MADI input to data streams on the network, and converts data streams to 64-channel MADI outputs.

The LIO-48 Logic BLADE provides 48 universal logic I/O ports, each individually configurable, for turning devices on or off by time or event, for automatically adjusting the audio processing settings when a certain mic turns on, and for any other logic control you need in your studio operation.

Our HD-SDI BLADE de-embeds multiple audio channels from HD-SDI streams so you can mix, process or simply route audio to your console for final broadcast. It is capable of de-embedding up to four HD-SDI streams, and up to 8 AES/EBU pairs (16 audio channels) per stream.



Failsafe Redundancy

It's all about staying on the air - every second of every day - without fail

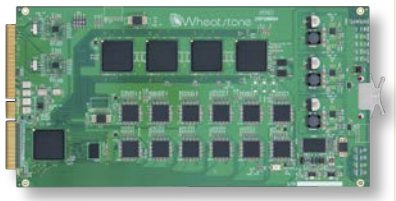
Wheatstone's experience in designing audio consoles for all broadcast realms as well as pioneering networking comes together in the Arcus. More power to handle modern needs with a user interface that is pure joy to get your hands on. And with Wheatstone's built-in safeguards, you can rest assured that you'll always be on the air... with or without fail.

Failsafes: Keeping You Live

Redundant Sources

With Pages, you can easily assign redundant sources to each fader so, if the primary feed goes silent, an operator need simply press the second page to recover audio. Because the system supports such a vast number of inputs, there's room to provide these redundancies without the need for patching or external switching.

Redundant Components



If a DSP chip fails in a traditional console, it tends to take the entire card with it, leaving the board dead. Thus, having a backup DSP chip on the same card is not really a solution. With Wheatstone, a hot-spare DSP card can be utilized with automatic failover in the event of a problem with the primary engine. Because any source can be assigned to any fader, even catastrophic damage to a fader module on the console (as from a drink spill or falling object) only means that the damaged faders are out of action. The sources can be rerouted to other faders, and the show goes on.

Redundant Power

Gibraltar Network cage utilizes internal modular power supplies and can accommodate up to two units for redundancy.

Designed and built by
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Wheatstone
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