



# IP-12

MODULAR WHEATNET-IP NETWORKABLE CONSOLE



**AUDIOARTS**

► Flexible. Affordable. Built To Last.

# Here's how easy it is to set up the IP-12...

1. Using standard CAT-6 or CAT-5e cables, plug the IP-12 control surface and the BLADE into a gigabit Ethernet switch.





2. Plug some of your own audio sources into the BLADE.

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3. Turn it on and start mixing!



...that's it!

# Audioarts IP-12

## MODULAR NETWORKABLE AUDIO CONSOLE



The IP-12 offers a great way for a small to medium radio operation to enter the world of networked audio. By moving the audio, logic and interface functions out of the board and into a single rack-space unit called a BLADE, we are able to provide a significant boost to the flexibility, power and futurability of this console.

Tapping into the power of WheatNet-IP Intelligent Network technology through the use of the included IP88CB Console Audio BLADE, it's a perfect low-cost, small-footprint solution. AND it's a great way to start or expand a WheatNet-IP network.

The IP-12 starts with a 12-fader control surface that looks and feels exactly like a self-contained console. Each of the 12 input modules is equipped with an LED source name display and an A/B source selector whose sources can be set via a rotary

encoder in the master section. Each input module has access to four program busses and has cue and talkback switches. A 100mm Penny + Giles long-throw fader and lighted channel ON/OFF switches round out the module.

The master section offers control room, studio, and headphone controls with source selection, as well as an onboard headphone jack and amplifier. Timer controls, a master talkback button, and a built-in cue speaker with volume control are provided. There are four event switches and six programmable buttons available for user functions.

The meter bridge has three stereo pairs of bright 30-segment horizontal LED bar graph meters, as well as an on-board timer with controls located in the master section.

- 12-fader compact control surface
- 4 stereo program busses
- LED source name displays
- LED-illuminated switches
- A/B source selector on each input module
- Guarded channel ON/OFF switches
- Headphone output with built-in amplifier and level control
- Control room and studio monitor outputs with independent source selectors and level controls
- Four event switches
- CUE bus with built-in amplifier and speaker
- Three pairs of bright, 30-segment bargraph meters
- Six programmable buttons
- Individual Channel Mix-Minus outputs with talkback interrupt
- Source Selectable Studio Output with talkback interrupt
- On-board timer
- Uses the IP88CB Console Audio BLADE, WheatNet-IP compatible
- Modular control surface design



## IP88CB AUDIO MIX ENGINE/INTERFACE BLADE

The IP-12 control surface connects via Ethernet to its audio engine, the Wheatstone WheatNet-IP IP88CB Console Audio BLADE. A powerful 1RU device containing the console's digital signal processing, input, output, and logic circuitry, the engine has no fans and may be located either next to the console or at a remote location.

The IP-12 is the first Audioarts product to tap into the power of WheatNet-IP. Utilizing an IP88CB Console Audio BLADE, it is a standalone console with all the advantages of modular design.

- Integrated I/O Mix Engine Blade
- 2 Mic Preamps with phantom power and gain trim w/ XLR inputs
- 4 Stereo (8 Mono) Analog Line Inputs on RJ45
- 4 AES Inputs on RJ45
- 4 Stereo Analog Line Outputs on RJ45
- 4 AES Outputs on RJ45
- Cue and Headphone Outputs on RJ45 and 1/4" jack
- Control Room and Studio Monitor Outputs on XLRs
- 12 Programmable Logic Ports
- 1 RU Enclosure
- Front panel metering for all busses and outputs
- Gigabit port for connection to WheatNet-IP network

## Here's how powerful the IP-12 can be:

### First...What is a BLADE?



A BLADE is a single rack-space device that functions on the WheatNet-IP network. The IP88CB is a specific mix-engine and I/O BLADE that provides the DSP functionality for our control surfaces (such as the IP-12) as well as all the inputs and outputs you are likely to need in a small studio. We've also got BLADES that are specifically designed to handle additional I/O tasks, converting each hardware physical input – audio or logic – to a data stream on the network and converting data streams to hardware physical outputs.

The targeted functionality built into our BLADES gives you tremendous flexibility in setting up your facility. For instance, you are no longer tied to having to have an audio console wherever you want your I/O. In fact, your control surfaces and I/O BLADES can be in completely separate rooms/studios within your facility/network. Any input or output can be easily dialed up for the user from any channel on any control surface in the network.

Use additional BLADES wherever you need them! BLADES let you work more efficiently and reliably than ever before.

When you buy the IP-12, you are not only getting an exceptionally well engineered audio mixing console, crafted completely here in the USA in New Bern, NC, you are stepping into the world of pure IP networked audio known as the WheatNet-IP Intelligent Network. What's this mean?

Let's start with pure IP networking. Some other companies who offer AoIP systems use a less flexible and somewhat limited hybrid technology based on older protocols such as **CANbus**, designed for much smaller networking needs - such as managing data in a vehicle. While it works, it is limiting in that it requires a mix engine to be very near by and often needs dedicated hardware. Additionally, it prohibits true plug-and-play interfacing, meaning you end up buying more hardware than you'd need in a pure IP environment.

The IP-12 is a *pure* IP system that's completely modular. To use it, or any component on a WheatNet-IP network, simply plug it into a Layer 2 or better gigabit Ethernet switch and you are live on the Intelligent Network. And here is where things get really cool...



### About WheatNet-IP Intelligent Network:

An intelligent network is one where the network's core intelligence is distributed to all of its access points. These nodes, which we call "BLADES", are intelligent – each has knowledge of itself, of its place in the network and of the network as a whole. This means that every BLADE has the smarts to get things done, locally or anywhere else in the network.

WheatNet-IP is self-aware. Every BLADE on your network knows who it is and what it is supposed to do. This makes setup as easy as plugging it in and turning it on. When you need to add to your network, just connect the new BLADE, and watch it configure itself in seconds. It's literally THAT easy.

WheatNet-IP is self-healing, offering as many points of recovery as you have BLADES in your system. In the exceptionally unlikely event that a BLADE should fail, just plug an alternate in and you are up and running. Or, if there's an unused BLADE anywhere on the network, you can have it take over for a like BLADE. Since each BLADE has the entire WheatNet-IP intelligent network's configuration embedded in its DNA, the new BLADE inherits its function immediately and you are back up and running in moments.

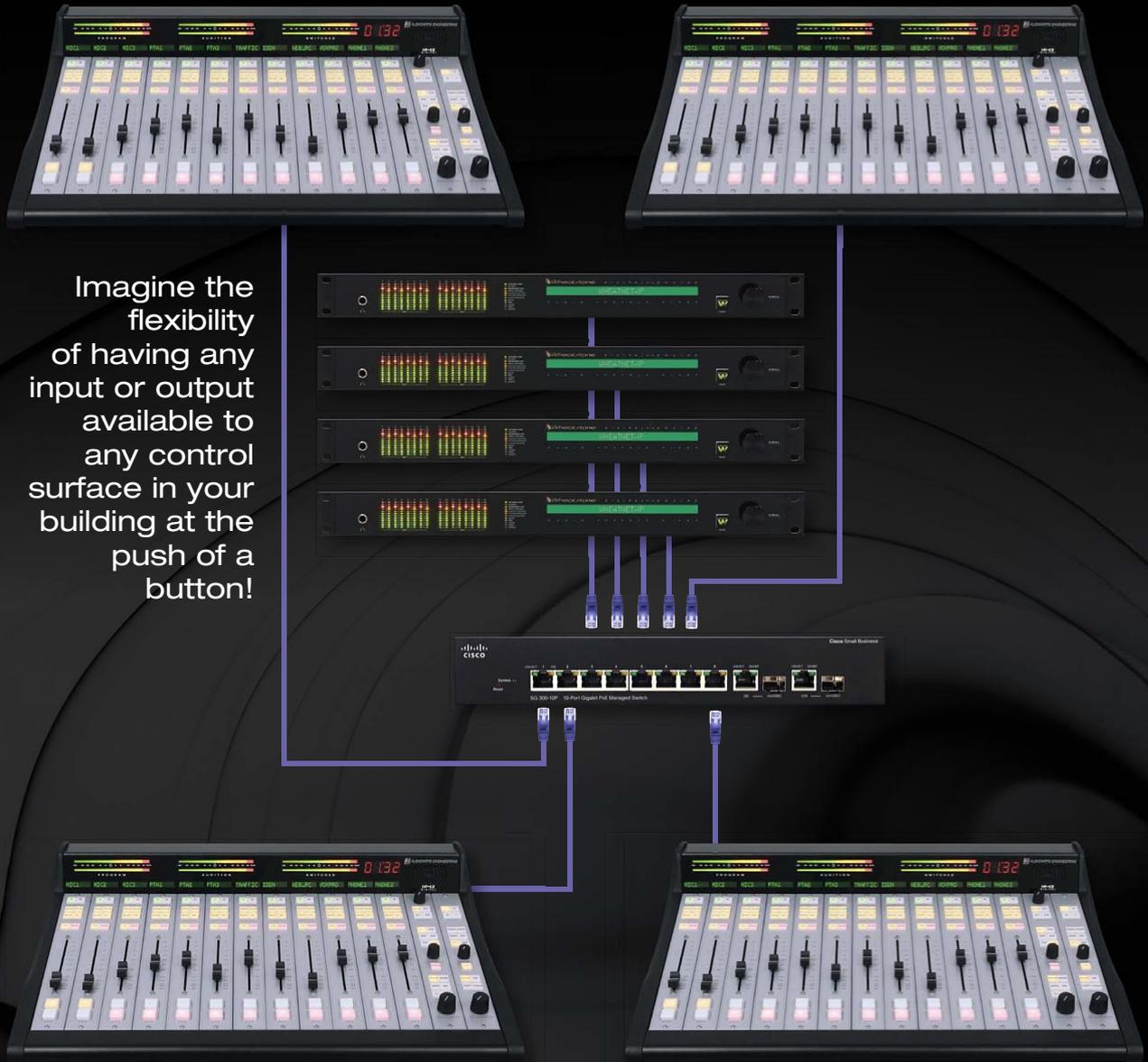
WheatNet-IP is 10X faster. You may not think you need the speed, but think of it this way... remember when a 10 meg hard drive seemed like it was all you'd ever need? Or when a 56K modem seemed like overkill? Audio needs as much bandwidth as you can throw at it, and the WheatNet-IP Intelligent Network gives you 10 times the bandwidth of the other major system. Think of it as money in the bank.

WheatNet-IP is NOT more expensive. When you add up all the costs for your entire network, WheatNet-IP comes out to just about the same money as the other systems on the market. No marketing-speak about your labor or performance here - we're talking straight hardware comparisons.

Finally, WheatNet-IP is incredibly easy to use – from setup and configuration to daily use, WheatNet-IP is intuitive and straightforward. All it takes to start is a control surface, a BLADE and a gigabit Ethernet switch – just plug and play. From there, adding-on is even easier. With WheatNet-IP, your staff will be able to concentrate on their jobs rather than the hardware.

Now that you're thinking about networking,  
here's how easy it is to be powerful...

Imagine the flexibility  
of having any  
input or output  
available to  
any control  
surface in your  
building at the  
push of a  
button!



It's just as easy to build a facility-wide network  
as it is to get a single board up and running...

# Need more inputs and outputs?

No matter how many inputs and outputs you need, you're covered with the IP-12 and WheatNet-IP. Whether you are using a single console, with audio inputs and outputs in multiple studios, or using 10 consoles with 80 inputs and outputs, interfacing is as easy as putting a BLADE wherever you need I/O and a control surface wherever you need to mix.

The only thing you MUST have is at least one IP88CB for every IP-12 control surface. Beyond that, you can feel free to put analog, digital or any combination of BLADES wherever you need them to accommodate all of your I/O needs.

## News Suite



## Studio One - On Air



## The Parking Lot (Live Band Concert)



## Studio Two - Production



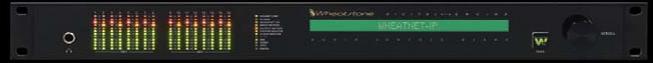
## Engineering Suite



# Cool stuff about the IP-12

## Modular Architecture

For the IP-12, we've moved the logic, audio and interface to a single space rack unit we call the IP88CB Console Audio BLADE. This mix engine node handles all the interfacing and heavy lifting. It connects to the IP-12 control surface via standard Ethernet. The two of them together make an incredibly powerful self-contained console. But there's more – they enable you to become a part of the WheatNet-IP network (if you have one, of course). This means that with the IP-12, you've got the first building block to a networked facility or you've got another station on your existing network. Either way, the functionality you get with the IP-12 is pretty breathtaking.



## Modular Construction

We've built the IP-12 (in New Bern, NC USA, by the way) to be easily accessed by you. No 'one-surface, gotta take the whole thing apart construction' here. If you need access to a channel, all it takes is two screws and you're in. Makes it a breeze to service or simply swap out a module.



## Source Select

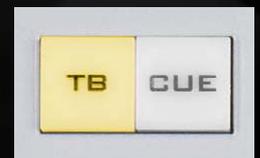
Any input can be called up on any channel on the IP-12. This means that the feed you've got plugged into input 7 on the back of the BLADE (or ANY BLADE), for instance, can show up on channel 2...or any channel. Same with any input! Not only that, you can assign a backup or different source to the same channel and switch on the fly by using the SOURCE A/B buttons. As if this isn't cool enough by itself, think about the flexibility if/when you decide to link the IP-12 up to a network. Imagine having any source on the network at your fingertips, with no patching.



## Mix-Minus / Direct Outputs

Each fader has a dedicated Mix-Minus output (activated by the TB switch) that includes all active faders on its selected source bus, except for itself. These auto generated monaural Mix-Minus signals may be routed to feed telephone hybrids or other devices as required.

Alternately, these outputs may be set to provide a separate direct output from that channel-only, that consists of the source assigned to that channel. This is very useful for multitrack production work.



## Automation Ready

Got automation? IP-12 is hardware-ready. We offer a software driver that works seamlessly with the most popular automation platforms to give you control right from the console! And our list of partners reads like a who's who of automation.



# IP-12 Control Surface Modules

## Input Module



**INPUT:**

Selects between two preset sources (see Master Module). A and B sources allow a redundant source to be preset for immediate backup use.

**ASSIGN:**

Directs the module's signal to any of three stereo output busses, plus "OL", a prefader stereo bus.

**TB:**

Routes the selected talkback mic to the module's individual Mix-Minus output.

**CUE:**

Routes the module's prefader signal to the CUE bus.

**FADER:**

100mm Long-throw Penny + Giles fader for module level control.

**ON/OFF:**

Switches the module's audio path on and off.

## Master Module



**CUE:**

Sets the volume of the cue speaker.

**METERS:**

Sets the switchable meter pair to display the AUX or offline bus, or one of two external sources.

**SOFT KEY:**

Programmable keys to handle frequently utilized user functions.

**ENCODER:**

Rotary control used to select sources for the selected channel "A" or "B" preset.

**TAKE:**

Assigns the source selected on the rotary encoder.

**SOURCE:**

Selects one of four busses or two external sources for listening in the control room.

**CONTROL RM:**

Level control for the control room output.

## Monitor Module



**EVENT:**

Recalls one of four user-programmable console snapshots. (An overpress of these buttons will save an event).

**SOURCE:**

Selects one of four console busses or two external sources to feed the studio monitors.

**STUDIO:**

Controls the volume of the studio monitors.

**TB:**

Engages talkback to the studio monitors.

**TIMER:**

Buttons for auto-start, start/stop, reset, and hold for the built-in timer in the meter bridge.

**HEADPHONE:**

Level control for integrated headphone amplifier output.

# Audioarts IP-12 Specifications

## IP-12 Control Surface:

### PHYSICAL

Dimensions (tabletop mount)	22.5"/57cm wide 16.5"/42cm deep 5"/13cm high (rear) 2"/5cm high (front)
Weight	18.1lbs/8.2kg
Power consumption	1.35A, 42W



## IP88CB Console Audio Blade:

### ANALOG I/O

Inputs	Electronic differential, >10K $\Omega$ (bridging) Optimum source impedance <1K $\Omega$
Outputs	<10 $\Omega$ , 20Hz-20kHz Optimum load impedance >600 $\Omega$
Frequency response	$\pm$ 0.25dB, 20Hz-20kHz, ref +4dBu
THD+n	0.04%, 20Hz-20kHz, ref +4dBu
Noise	-85dBu; -109dB ref max level out
Gain range	$\pm$ 18db, inputs and outputs
Maximum input	+24dBu
Maximum output	+24dBu

### DIGITAL I/O

Inputs	Balanced 110 $\Omega$ AES-3, S/PDIF compatible
Outputs	Balanced 110 $\Omega$ AES-3 only
Frequency response	Flat, 20Hz-20kHz, ref -20dBFS, +4dBu
THD+n	0.0009%, 20Hz-20kHz, ref -20dBFS, +4dBu
Noise	-141dBFS, ref max level out
Gain range	$\pm$ 18db, inputs and outputs
Maximum input	0dBFS
Maximum output	0dBFS
AES channel status	Standard implementation

### MICROPHONE I/O

Inputs	Electronic differential, >2K $\Omega$ (bridging) Optimum source impedance <200 $\Omega$
Outputs	<10 $\Omega$ , 20Hz-20kHz Optimum load impedance >600 $\Omega$
Frequency response	$\pm$ 0.5dB, 20Hz-20kHz, ref +4dBu
THD+n	0.02%, 20Hz-20kHz, ref +4dBu
Noise	-85dBu; -109dB ref max level out
Reference level	-50dBu
Gain range	+20 to +80dB, inputs; $\pm$ 18db, outputs
Maximum input	-10dBu
Maximum output	+24dBu

### LOGIC I/O

Connectors	RJ45 (2), 12 channels
Voltage	+5VDC to GND +5VDC and GND provided
Current	100mA max source/sink

### AUDIO INPUT and OUTPUT CONNECTIONS

Inputs	4 stereo analog (RJ45s) 4 AES digital with SRC (RJ45s) 2 mono analog mic (XLR-Fs), patchable, with variable gain and +48V phantom
Outputs	4 stereo analog, PGM A-B-C-D (RJ45s) 4 AES digital, PGM A-B-C-D (RJ45s) 2 mic out (RJ45) 1 control room, stereo analog (L&R XLR-Ms) 1 studio, stereo analog (L&R XLR-Ms) 1 headphone, stereo analog (L&R phone jacks and RJ45) 1 cue, stereo analog (L&R phone jacks and RJ45)

### ETHERNET

Connectors	RJ45 (2)
Cable	CAT5E or CAT6
Audio transport	Gigabit Ethernet 1000BASE-T, used for all BLADE-to-BLADE audio traffic
Utility interface	100BASE-TX for future use

### SYSTEM

Sample rate	44.1 or 48kHz, user selectable in software
Sync	Internal or external External sync input on any I/O digital BLADE
Mix Engine	Internal mix engine for IP-12 control surface
A>D converter	ADC enhanced dual bit, 24 bit resolution
D>A converter	DAC 24bit advanced $\Sigma\Delta$
Sample Rate Convertors	32-96KHz, 16-24 bit on all digital inputs
Reference level	0dBFS=+4dBu (+4dBu=1.23VRMS)
Latency	0.5mS, BLADE to switch to BLADE

### PHYSICAL

Dimensions	1RU 19"/48.3cm wide, 1-3/4"/4.5cm high 13-1/4"/33.7cm deep 15-1/4"/38.7cm deep with connectors
Shipping weight	14lbs/6.4kg
Power consumption	35VA, 19W

## IP-12 Control Surface



## IP88CB Audio Mix Engine - I/O



# IP-12

**Audioarts Engineering**  
 division of Wheatstone Corporation  
 600 Industrial Drive | New Bern NC 28562-5440 USA  
 phone 1.252.638-7000 | fax 1.252.635-4857  
 audioartsenineering.com | sales@wheatstone.com



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