



**See It. Take It.**

## Avenue Flexible Matrix Router

- Realtime video thumbnails of every SDI source and destination
- Flexible I/O for exactly the matrix size you need
- Clean Switch for Critical Feeds
- Signal Monitoring and Reporting

### See It.

Now you can look at your source before you do a take. The exclusive live thumbnail display in the Avenue Router panel shows you the source before you take it to air.

### Take It.

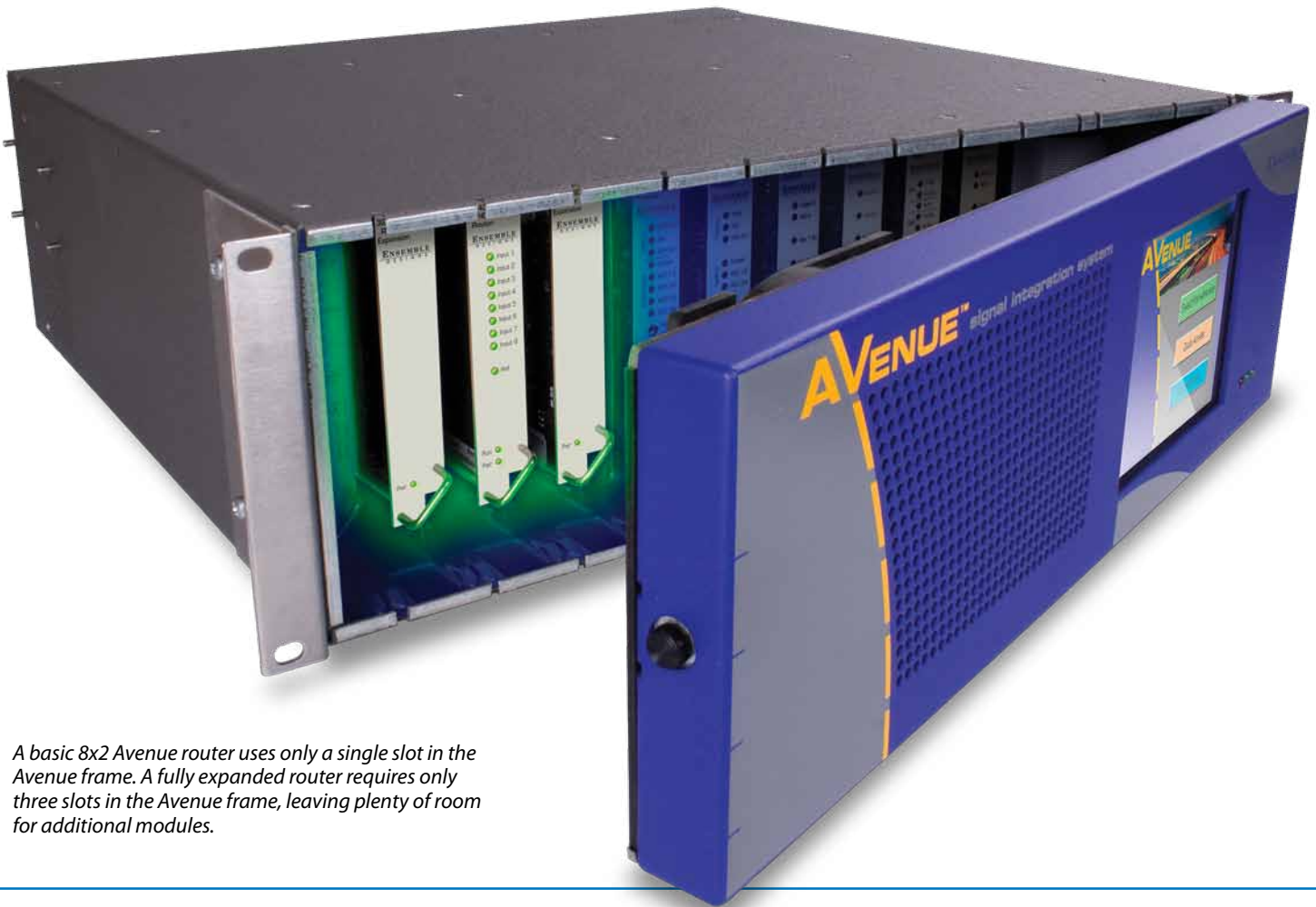
It's the best of both worlds, a router and a clean switch all in one. The clean switch gives you full frame synchronization that locks to your house reference so it can even switch cleanly between asynchronous sources. Flawless audio sample rate conversion makes this router truly Clean and Silent.

### Choose Your Size.

Then Choose Again. And Again. Highly flexible matrix sizing lets you decide on your own configuration. The basic size is 8x2. Add user configurable input or output ports all the way up to 28x2 (or 8x22) and any size in between. Need a 12x5 or a 15x15? You choose.

## Features

- Use this router for master control bypass, QC monitoring, off-site news bureaus and radio shows, mobile trucks, helicopters
- Exclusive realtime video thumbnail display for every SDI source and destination in the router
- Highly configurable – choose exactly the size and number of I/O ports needed from 8x2 to 28x2 (or 8x22) or any size in between such as 12x5 or 15x15. You choose
- Clean and quiet switch option has full frame sync
- Signal diagnostics and reporting with indicators for synchronicity and timing, audio, closed captions, time code and AFD
- Built-in, internal black and bar generator. No need for external generators. Saves router inputs
- Control choices include the Router Control Panel, web browser, Avenue Router iPad App, serial protocols via TCP/IP, RS-232 and SNMP
- Supports every type of signal you need - HD, SD, 3 Gb/s SDI, ASI and 310M. It's multi-format, use any mix of signal types



*A basic 8x2 Avenue router uses only a single slot in the Avenue frame. A fully expanded router requires only three slots in the Avenue frame, leaving plenty of room for additional modules.*

## Routing and Signal Processing in the Same Frame

The Avenue product line is comprised of dozens of modules that perform a wide variety of signal generation, processing, and conversion functions. The 3RU Avenue frame accepts up to 10 modules with redundant power and full remote control and monitoring capabilities.

A basic 8x2 Avenue router requires only a single slot in the Avenue frame, or the equivalent of 3/10 of a RU of space. A fully expanded router requires only three slots in the Avenue frame, leaving plenty of room for additional modules. The Avenue router is an excellent choice where space is at a premium and other signal processing and conversion functions are required.

# A Router Revolution

The Avenue modular digital video router is the most flexible, technologically advanced small router available today. It's ideal for QC monitoring, master control bypass switching, ENG trucks, edit suites, and a host of other applications. Ease of expansion, user-definable input/output port geometry, exclusive video thumbnails, built-in test signal generation, and optional clean and quiet switching on multiple outputs make it perfect for your next project or upgrade.



*The Avenue router may be controlled from the Avenue frame's touch screen, from the Avenue PC control application, from a dedicated hardware control panel, from a dedicated software based control panel, or from an external automation system or computer.*

*The Router Control Panel is powered by an AC supply or Power over Ethernet (PoE).*

## Exclusive Live Thumbnail Display

Realtime video thumbnails travel over Ethernet to the Router Control Panel where they are displayed on a compact, high resolution display. Video thumbnail generation is an exclusive feature of the Avenue router. This enables the operator to visually verify source content before performing any switching operations. Use the panel at your facility or use it remotely, thousands of miles away.

The Avenue router allows the user to define both source and destination names as part of the configuration process and store them in the router itself. Names are displayed on both the hardware and software control panels along with the video thumbnails.

## Built-in Signal Diagnostics

Circuitry on the 9430 module detects and measures key parameters associated with each video source. Synchronicity and timing, line and frame rate, embedded audio presence/absence, closed caption information, and time code data are displayed on the Avenue router hardware and software panels. Control panels provide the option of displaying abbreviated information as a thumbnail overlay, or more detailed information as a dedicated screen.

## Highly Flexible Matrix

The new, flexible matrix design allows you to configure the router to the perfect size for your facility. The basic size is 8x2. You can add user-configurable input or output ports all the way up to 28x2 (or 8x22) and any size in between. The design is future-proof, allowing the router to be easily reconfigured to a different matrix size at any time.

## Clean and Quiet Switching – Done Right

The optional Clean Switch provides full frame synchronization so it can even switch cleanly between asynchronous SDI sources. Use the control system to assign the clean switch to any input or output. Additional ports can be assigned to follow the clean switch, making it appear simultaneously on multiple outputs.

## Architecture

The Avenue router occupies from one to three slots in any Avenue 3RU frame. The router is comprised of three different modules: the 9430 8x2 router module, the 9435 clean switch sub module, and the 9440 ten port expansion module. Power (redundant option available), video reference, and an interface to the Avenue control system is provided by the frame.

While the dimensions of the base 9430 router module are fixed at 8 inputs by 2 outputs, the 9440 module provides ten additional ports, each of which is individually user configurable as either an input or an output. Up to two 9440 expansion modules may be added to the base 9430 module. A 9430 plus a single 9440 supports a total of 11 different configurations ranging in size from 18x2 to 8x12. A 9430 plus two 9440 modules supports a total of 21 different configurations from 28x2 to 8x22.

## Unparalleled Flexibility

Most small routers have a fixed number of input and output ports. Often, they are not expandable, and if they are, a fixed block of inputs and outputs have to be added. This makes it very difficult to match the size of the router to the application at hand.

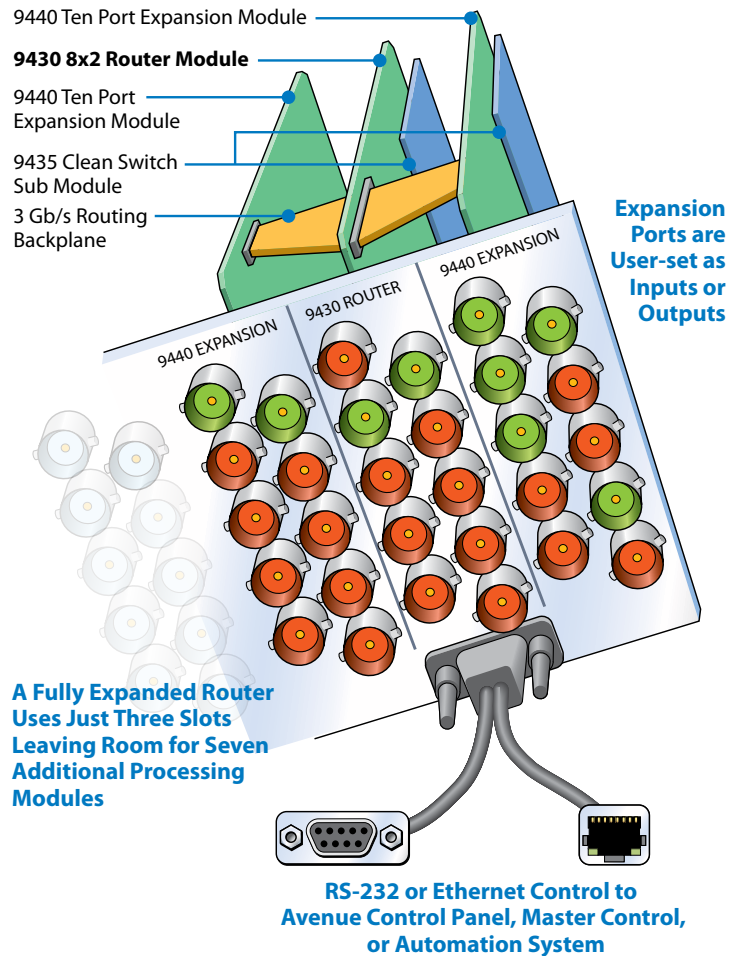
The unique architecture of the Avenue router makes it possible for the user to custom tailor the input/output dimensions of the router to more closely match the requirements of a particular application. Symmetrical (square) as well as asymmetrical (rectangular) configurations are supported.

## Clean Switch Option

Clean and quiet switching is available on the Avenue router by adding 9435 sub modules to the system. Each 9435 submodule provides clean and quiet switching for up to two independent destinations. A single 9435 may be added to the base 9430 8x2 router module. A second 9435 may be added to expanded systems, providing clean and quiet switching for up to four independent destinations.

The Avenue router utilizes video frame synchronizers rather than line delays to ensure perfect alignment of mis-timed and completely non-synchronous SDI sources. In addition, the unit's frame synchronizers continue to output black if the input signal goes away. This ensures continuity of the router's video output signal, a significant benefit if the router is feeding an MPEG encoder.

## Router Expansion Example for a 21 In x 9 Out Configuration



Glitch-free, quiet switching of embedded audio signals requires synchronization and alignment of audio sources at the input to the switcher. With the Avenue router's clean and quiet option, digital audio is de-embedded, and if it is linear PCM, sample rate converted, switched, and re-embedded. Encoded audio streams such as Dolby™ E are de-embedded and re-embedded but not processed in any way.

## Internal Generators for Easy QC

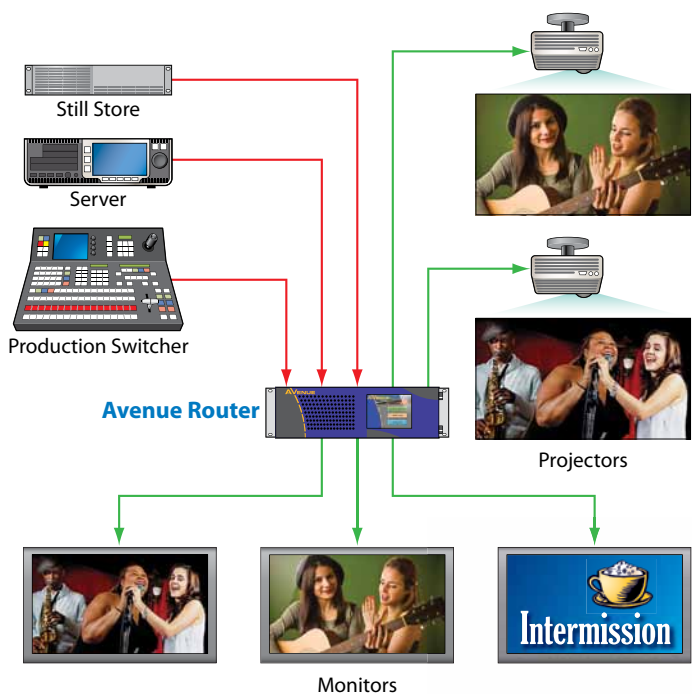
Bars/tone and black/silence are sources that are needed in many applications. Internal generation of these sources is another unique capability of the Avenue router. The bar generator includes a user programmable graphics overlay to allow the user to visually identify the source of the bars. This eliminates the need for additional external signal generation equipment, an important factor in many mobile and portable applications. Internal black and bars appear as sources without consuming a connector.

## A Single Router with 33 Possible Sizes

9430 Router Module	9430 Router Module + 9440 Expansion	9430 Router Module + 2 x 9440 Expansion
8 fixed inputs 2 fixed outputs	8 fixed inputs 2 fixed outputs 10 bi-directional ports	8 fixed inputs 2 fixed outputs 20 bi-directional ports
8x2	18x2 17x3 16x4 15x5 14x6 13x7 12x8 11x9 10x10 9x11 8x12	28x2 27x3 26x4 25x5 24x6 23x7 22x8 21x9 20x10 19x11 18x12 17x13 16x14 15x15 14x16 13x17 12x18 11x19 10x20 9x21 8x22

No need for external test signal generators. The router's internal black and bar generator adds two additional SDI sources on top of your I/O port configuration.

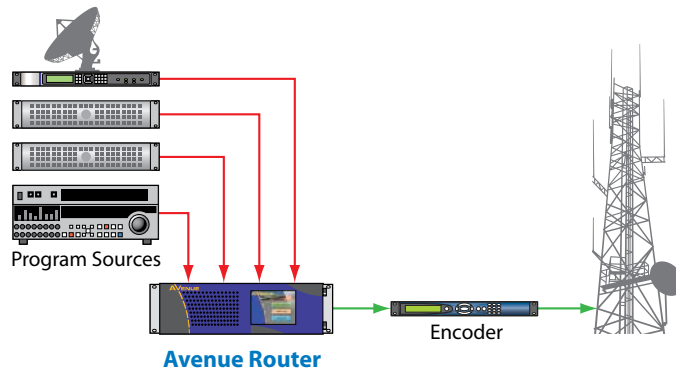
## Monitors and Projectors for Venues



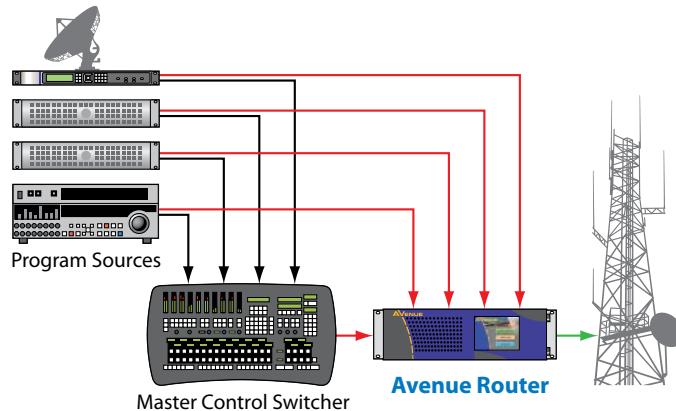
## Applications

The Avenue router is ideally suited to a wide range of applications, including mobile and portable systems, QC stations, graphics and post-production islands, ingest, production switcher pre-select, master control bypass, driving on-set monitors, and general utility switching. The flexibility of the system makes it possible to tailor the input/output dimensions to a wide range of requirements. VITC captured from the reference input can drive time-scheduled switching.

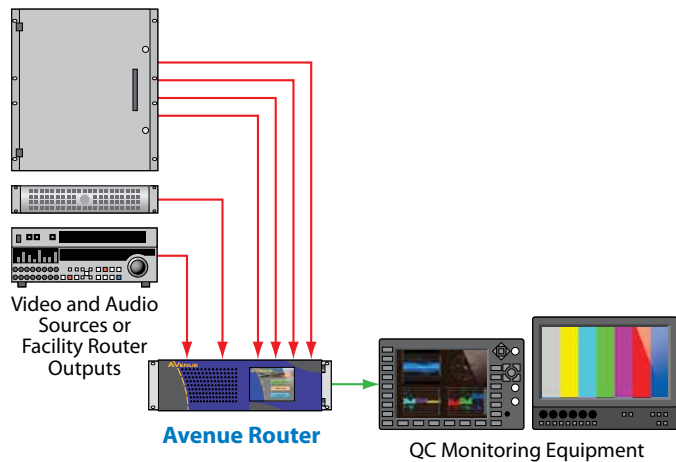
### Cuts-Only Master Control

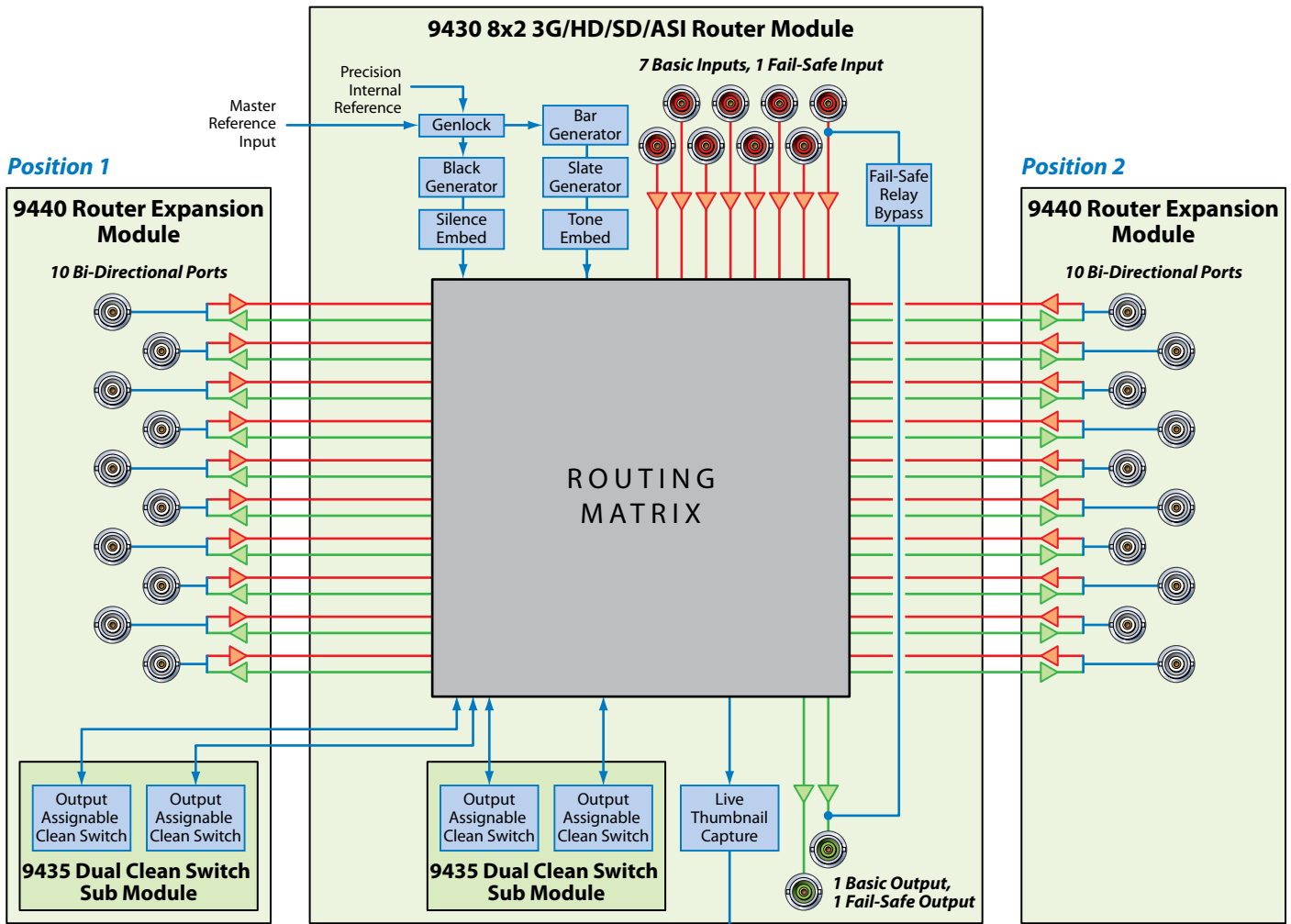


### Master Control Bypass

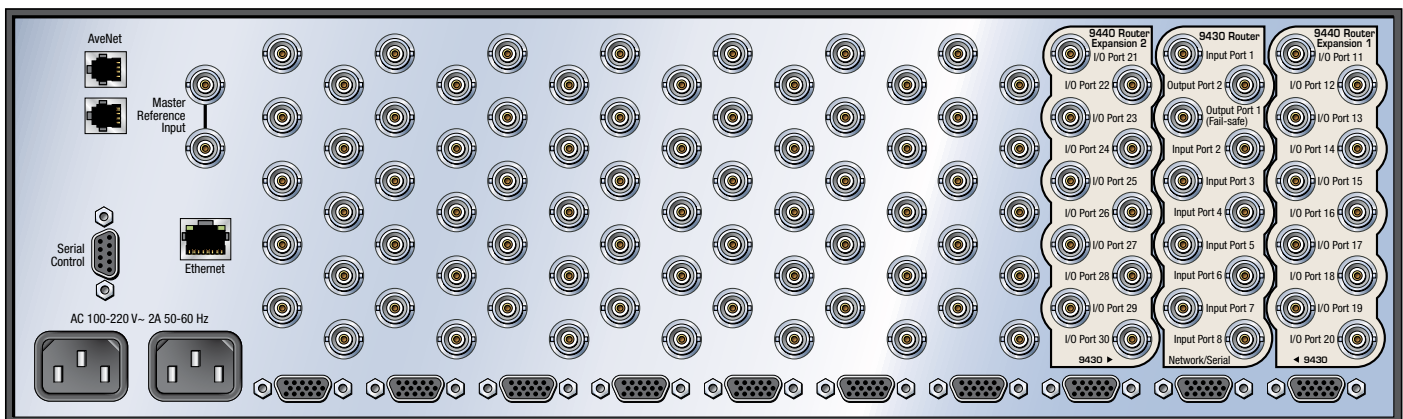
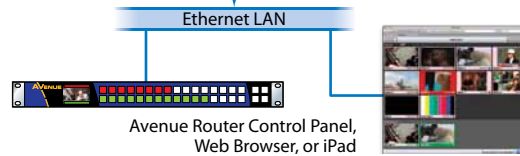


### Quality Control and Signal Monitoring





Each BNC on the 9440 Expansion Module is designated as either an input or an output. You make that assignment through the control system



## Avenue 3RU Frame

### Frame Dimensions:

Height	3RU 5.25"/133.4mm
Width	19"/482.6mm
Depth	15.1"/383.6mm
Weight	26.5 lbs/12.1 kg

## Order Info:

3RUF RM	3RU Frame
5020	Optional Redundant Power Supply
5030	System Control Module
5040	Plain Front Door
5050	Touch Screen Door

## 9430 Specifications

### Inputs

Number	Eight
Signal Type	HD Serial Digital 1.485 Gb/s SMPTE 274M, 292M or 296M, HD Serial Digital 2.97 Gb/s SMPTE 424M, 425M, SD Serial Digital 270 Mb/s SMPTE 259M, DVB-ASI at 270 Mb/s, SMPTE 310M AES3id
Impedance	75Ω
Return Loss	>15dB to 1.485 GHz

### Max Cable Length

270 Mb/s	300 meters Belden 1694A
1.485 Gb/s	100 meters Belden 1694A
2.97 Gb/s	70 meters Belden 1694A
Automatic Cable EQ	

### Outputs

Number	Two
Signal Type	Follows input
Impedance	75Ω
Return Loss	>15dB to 1.485 GHz
Output DC	None (AC coupled)

### Reference

Number	One via frame master ref input
Signal Type	Composite black, Tri-Level Sync, 10 MHz

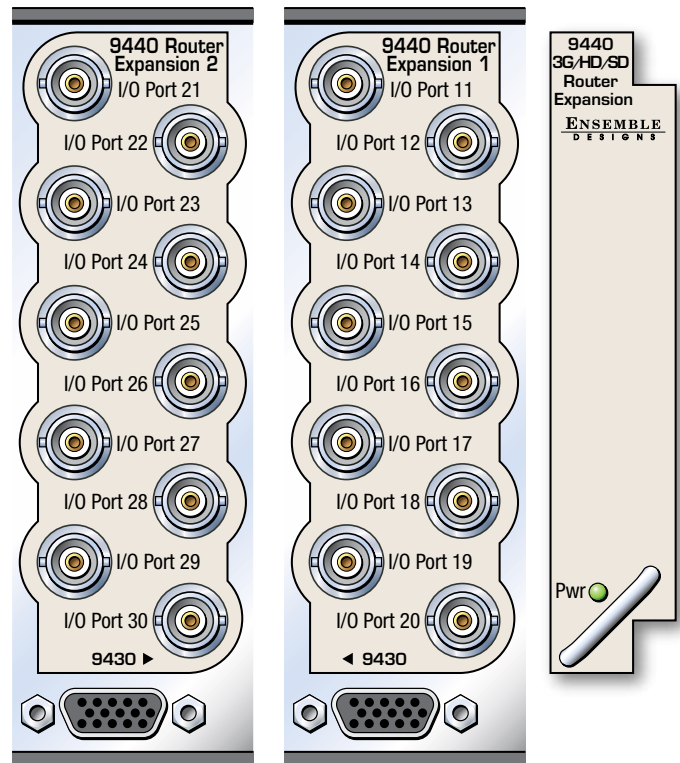
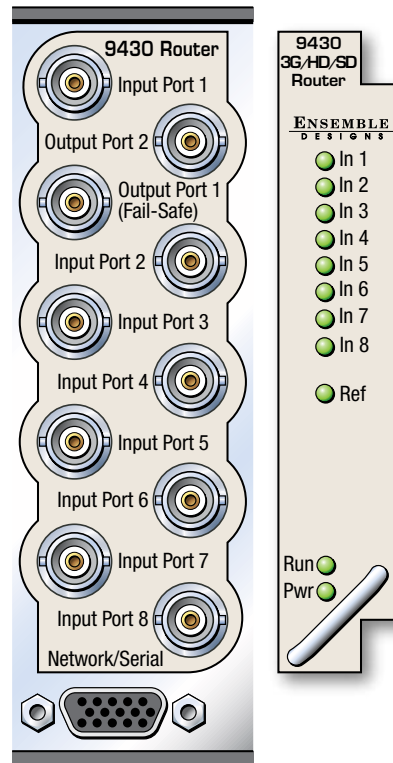
## 9440 Specifications

### Inputs

Number	Up to ten, user configurable
Signal Type	Same as 9430
Impedance	75Ω
Return Loss	>15dB to 1.485 GHz

### Outputs

Number	Up to ten, user configurable
Signal Type	Follows input
Impedance	75Ω
Return Loss	>15dB to 1.485 GHz
Output DC	None (AC coupled)



## Order Info:

9430	8x2 3G / HD / SD / ASI Router	9440	Router Expansion Module
9435	Dual Clean Switch 2 independent clean switches per 9435 For use with 9430 and 9440 in Expansion Position #1		Adds 10 user configurable I/O ports 1 or 2 9440s may be added to each 9430
		5830	Router Control Panel with LCD Preview Display (1RU)

# Who is Ensemble Designs?

## By Engineers, For Engineers

In 1989, a former television station engineer who loved designing and building video equipment, decided to start a new company. He relished the idea of taking an existing group of equipment and adding a few special pieces in order to create an even more elegant ensemble. So, he designed and built his first product and the company was born.

## Focused On What You Need

As the company has grown, more former TV station engineers have joined Ensemble Designs and this wealth of practical experience fuels the company's innovation. Everyone at the company is focused on providing the very equipment you need to complete your ensemble of video and audio gear. We offer those special pieces that tie everything together so that when combined, the whole ensemble is exactly what you need.

## Notably Great Service for You

We listen to you – just tell us what you need and we'll do our best to build it. We are completely focused on you and the equipment you need. Being privately held means we don't have to worry about a big board of directors or anything else that might take attention away from real business. And, you can be sure that when you call a real person will answer the phone. We love this business and we're here to stay.

## Bricks and Mortar of Your Facility

The bricks and mortar of a facility include pieces like up/downconverters, audio embedders, video converters, routers, protection switches and SPGs for SD, HD and 3Gb/s.

That's what we're focused on, that's all we do – we make proven and reliable signal processing and infrastructure gear for broadcasters worldwide, for you.

*Shipped with care to television  
broadcasters and video facilities  
all over the world.*



*Avenue frames handle 270 Mb/s, 1.5 Gb/s and 3 Gb/s signals, audio and MPEG signals. Used worldwide in broadcast, mobile, production, and post.*

*Use audio embedders,  
sync pulse generators,  
upconverters, logo  
inserters and routers all  
together in one frame.*



*Come on by and visit us.  
Drop in for lunch and a tour!*

*Clearly, Ensemble wants to be in the broadcast equipment business. It's so rare anymore to find a company of this caliber that has not been gobbled up by a large corporation. They are privately held so they don't have to please the money people. They really put their efforts into building products and working with customers.*

*I'm really happy with the Avenue products and Ensemble's service, and even more important my engineers are happy. We've continued to upgrade the product and add more cards. We will be rebuilding our production control room and we will use Avenue again.*

**Don McKay, Vice President Engineering  
Oregon Public Broadcasting**



**ENSEMBLE**  
DESIGNS

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