Sirius 800
No compromise routing with Advanced Hybrid Processing

sam Snell Advanced Media

Supports 4K Routing

New Integrated Multiviewer

Sirius 830

Advanced Hybrid Processing

www.s-a-m.com

Introduction

Sirius 800 – Packed with more functionality – saving you space, power and cost.

4 Chassis options from 288 x 288 to 1152 x 1152
Allows best use of valuable rack space.

Field expandable
All systems have hot pluggable modules for easy expansion. Additional chassis can be added while the system is live on air.

Video and Audio routing in a single chassis
Route any video and audio input to any output – no routing limitations between module types.

The most advanced processing architecture
Processing available on every input and main output. Avoids the need for wrap-around signals, saving I/O, space and cost. Upgrade features by software licence.

All inputs and outputs are format independent
Allowing a mix of formats on a single module. Saves cost, increases system flexibility.

All inputs and outputs are timing independent
No need to synchronize signals externally.

Extensive resilience
Power, control, and crosspoint redundancy. Signal and system status reporting for resilient 24/7 operation.

3G routing capability as standard
Peace of mind – supports future formats including 4k.

Flexible monitoring options
Up to 140 additional outputs for multiviewers, plus 4 independent outputs for input and output monitoring.

NEW Integrated multiviewer
The new fully featured, integrated multiviewer offers up to 24 direct and IP connected outputs.
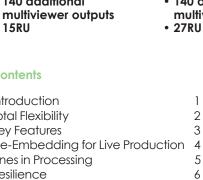

Sirius 800 series

Sirius 830
- **288 x 288 video**
- **140 additional multiviewer outputs**
- **15RU**

Sirius 840
- **576 x 576 video**
- **140 additional multiviewer outputs**
- **27RU**

Sirius 850
- **576 x 1152 video**
- **96 additional multiviewer outputs**
- **34RU**

Sirius 850
- **1152 x 1152 video**
- **192 additional multiviewer outputs**
- **2 x 34RU**

Contents

For further information on award-winning SAM products visit:
www.s-a-m.com

Total Flexibility

Sirius 800 is the most flexible platform for hybrid video and audio routing available. Additionally, Advanced Hybrid Processing (AHP) is the most flexible and powerful processing available in a router.

Hybrid Routing

Traditional system designs requiring video and mixed format audio (embedded, AES and MADI) needed separate video and audio routers with external de-embedding and embedding equipment. This was housed in multiple different chassis' taking 4 or more equipment bays. With Sirius 800 this can now be accomplished in a single chassis. The cost and space savings are huge. Operating costs are massively reduced, and with less equipment and cabling, reliability is greatly increased.

Multi-Format Routing and Processing in a Single Chassis

The unique architecture of Sirius 800 with AHP allows huge operational flexibility. Processing is available on every input and output.

All input module positions can be fitted with standard video modules which pass video with embedded audio transparently. Alternatively, video AHP modules can process and de-embed audio from a video signal. Or AES or MADI input modules can be fitted, to route any discrete audio signals present.

Advanced Hybrid Processing

Every single channel is handled independently. This allows all signals to have completely different formats, timing and synchronization. All audio can then be routed to any output, with no limitations. For example, 1080i/50 video input could have it's audio de-embedded and routed to a 720p/59.94 output, where the audio is embedded. Mis-timed video inputs can be re-aligned to the local reference.

Critical video outputs can be fitted with line synchronizers, to allow clean switching of the signal, Unsynchronized commentary from an AES input can also be embedded into the same video output. If signal levels are not as expected, gains can be adjusted. A mono version of a stereo signal can be created (e.g. for IP streaming) and embedded on any channel as required.
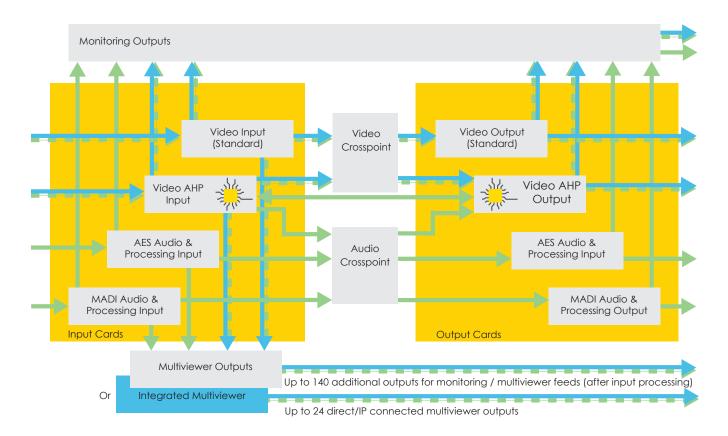
This format and timing independence reduces the complexity of system planning, and ensures that a system installed now will handle future updates as the system grows.

Input Embedding

Unique to Sirius 800. Embed any audio channel on the router (embedded, AES or MADI) into a video input - direct from the audio crosspoint, replacing or passing through any existing incoming embedded audio as required.

There's no need to embed on outputs, loop out and wrap around to inputs. This saves cost, reduces the number of modules and power requirements, and simplifies the system architecture.

Advanced
Hybrid Processing

Signal Formats

A range of input and output options are available, allowing a mix in any combination of:

- SDI/ASI – Standard video – 24 channel

- SDI with AHP (embedded audio processing and routing) – 24 channel

- 120 AES channels, balanced or unbalanced

- MADI - 12 dual redundant inputs and outputs

For video and MADI, interfaces include:

- Fiber – for space and cost savings associated with fiber transmission over longer distances

- Coax - for simplicity of local connections.

Advanced Hybrid Processing on Inputs and Outputs

The unique architecture, with processing available on every input and output offers significant advantages over other hybrid routers. Processing on inputs -

- Re-time incoming video to one of four references, with timing offsets if required

- Set up incoming signals as required when they come into your router

- Shuffle audio track arrangements to a house standard

- Adjust audio gains to match local line up levels

- Create mono mixes of stereo inputs

- Mute unwanted audio channels

- Add audio delay to specific channels to compensate for system delays

Processing on outputs - adjust if required when signals leave your router.

- Adjust audio parameters and tracks as on inputs

- Line synchronize for glitch free video switching

- Set up channels to meet external customer requirements

System Design Advantages

Input and output processing capability allows for huge space, cabling, cost and power savings. External processing and 'wrap-around' cabling to add processing loops is eliminated, meaning increased routing capacity is made available.

Audio processed on input modules is then re-embedded into the video on the input module. This means processed audio will be routed to all standard video output modules, allowing a reduced number of processing modules to be used, and therefore reducing cost.

Routing is via independent crosspoint modules for video and audio, with redundant capability for both signal types for extra resilience (in addition to redundant PSUs, control and cooling).

Because of the modular design, Advanced Hybrid Processing modules can be fitted where required, allowing the system to be tailored to specific system needs.

Integrated control allows operational workflows designed around user needs: For example, Preselected inputs can be automatically routed to a monitoring station, where they can be conformance checked before routing to air.
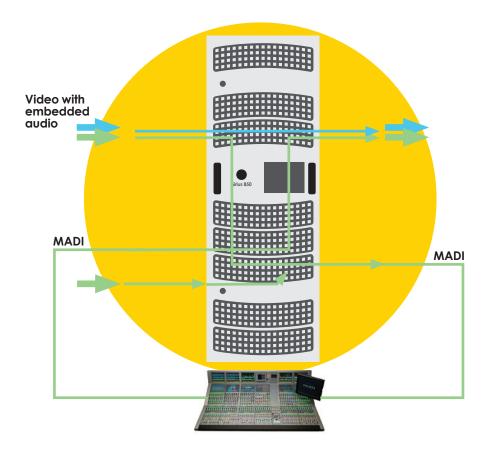
Typical Scenario

An incoming signal contains embedded audio. Some additional audio from a different source arrives on a MADI carrier. The audio must be mixed and re-embedded on a video feed to a satellite uplink.

Sirius 800 Solution

Because Sirius 800 can accommodate and route all signal formats in any combination within one chassis, individual audio channels from a video feed and a MADI feed can be routed to the same MADI output.

Audio is de-embedded from the video and routed to a MADI output, which is connected to the audio mixing desk.

Some audio channels are also routed to the same MADI output of the router. This presents all audio that is required for the audio mix on a single MADI connection.

The mixer outputs a MADI signal containing the required output program mix. The MADI is connected back into the router. The audio channels from the MADI are routed to an embedding output. The Sirius 800 re-embeds the audio channels into the required video feed.

Video with embedded audio

MADI

MADI

Typical Scenario

A Lines In area has multiple satellite feeds from overseas, and fiber feeds from remote venues. Signals need to be adjusted to meet internal house standards before feeding to local studio and playout areas.

- Satellite and remote fiber feeds may be non synchronous and of different formats (1080i/59.94 ,1080i/50, 525, 625).

- Overseas feeds may have audio lined up to levels incompatible with the local house standard.

- Embedded audio channel mapping does not match the house standard.
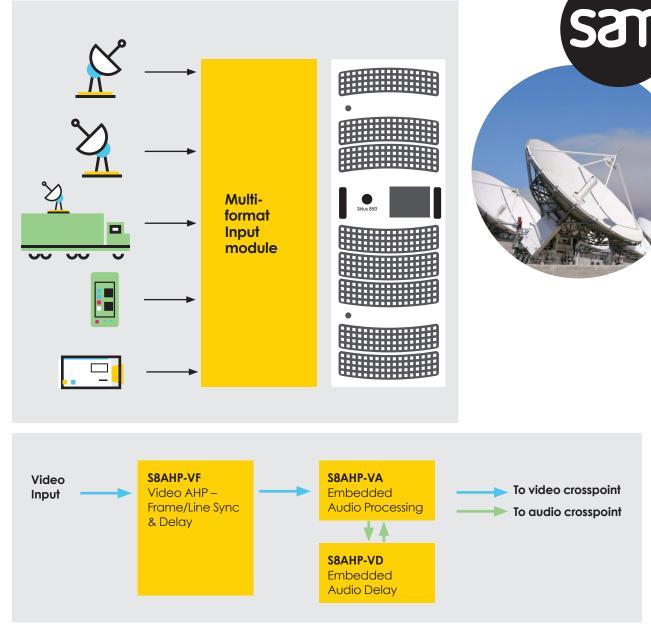
- New audio mixes are also required.

Sirius 800 Solution

Sirius 800 with Advanced Hybrid Processing allows each input to be adjusted independently of all others.

Because each video and audio channel is totally format and timing independent, any number of different formats can be processed on a single input AHP module, saving cost and space.

Firstly, external video is re-timed to the local reference, to ensure SMPTE compliant switching. Audio is then de-embedded, then tracks swapped to match the house standard. Audio line up levels are adjusted as needed. A mono mix is created from a stereo pair for use in streaming applications.

Finally, the adjusted audio is re-embedded onto the video and passed to the video crosspoint, and all adjusted audio is fed to the audio crosspoint for use as needed.

All inputs can be monitored using the four multi format input/output monitoring outputs available on all Sirius 800 chassis, or by simply routing to a QC station from any router output. Processing control will follow any channel routing selection, making QC operations simple and intuitive.

Multi-format Input module

Sirius 850

sam

Video Input	S8AHP-VF Video AHP – Frame/Line Sync & Delay	S8AHP-VA Embedded Audio Processing	To video crosspoint
			To audio crosspoint
		S8AHP-VD Embedded Audio Delay	

Resilience

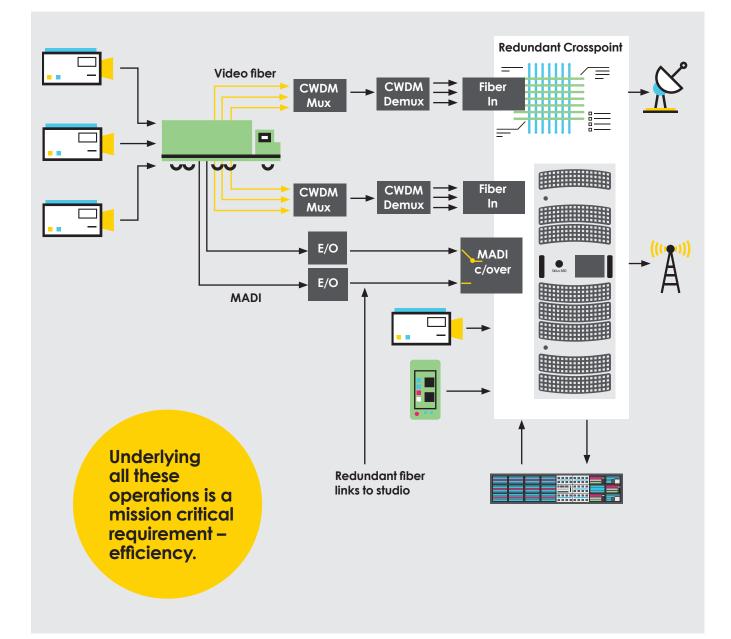### Typical Scenario
- **A Lines In / Studio routing taking signals from several venues**
- **Video feeds are via local area fiber link using CWDM**
- **Audio is via MADI on fiber link**
- **Local studio connections use coax**
- **Resilience for live production is critical.**

Sirius 800 Solution
- For Video, dual fiber CWDM connections are fed to the studio. External IQ modular CWDM demultiplexers convert signals to individual fire wavelengths. Fiber SFP receivers fitted to the router accept all wavelengths for routing each signal independently.
- Signal detection in Sirius 800 allows input signals to be monitored and redundant inputs to be switched into circuit automatically if the main input feed fails.

- For Audio, MADI fiber inputs are dual redundant, and have automatic or manual changeover between main and redundant input if the main signal fails.
- All signals then route through redundant crosspoints with automatic or manual changeover.

Redundant Crosspoint

Video fiber

CWDM Mux → CWDM Demux → Fiber In

CWDM Mux → CWDM Demux → Fiber In

E/O
E/O

MADI

MADI c/over

Sirius 850

Redundant fiber links to studio

Underlying all these operations is a mission critical requirement – efficiency.

Included with your Sirius 800 Router

- Main chassis, fitted with modules to suit your specific signal routing and processing requirements.
- Separate PSU chassis with redundancy as required
- One client PC licence for Workbench router control, allowing softpanel control of Sirius 800 video and audio routing, and Advanced Hybrid Processing functions.
- A set of customizable screen designs for use on Workbench client PCs.
- RollCall control soft panel, allowing full control of one matrix and all Advanced Hybrid Processing.
- Interfaces to hardware XY, multibus, BPX and LCD re-legendable router control button panels, and Rollpod AHP control panels.
- Support for external SAM and third party control systems using serial and Ethernet connection.

Control packages explained

Sirius 800 Routers are supplied with two control packages:

Workbench

Enables the user to:
- Enter video and audio signal names
- Set up serial and IP connections with mapping and offsets
- Define the relationships between signals, to allow complex multi-track routing control
- Design fully configurable softpanel screens to control video and audio routing, and AHP on input and output modules
- Set up hardware control panels for control of video and audio routing

RollCall

Enables the user to:
- Quickly connect to the Sirius 800
- Change video routing and AHP settings on all inputs and outputs without the need for system configuration or screen design
- Provides an interface to allow hardware AHP control panels and Routing LCD button panels to be connected

∧ Workbench Dial Up Track Routing Screen

∧ Workbench Input AHP Control Screen

∧ Workbench Softpanel Designer Screen Example

Item	Order Code
Workbench Softpanel Additional User licence – softpanel control for 5 additional user PCs connecting to the same configuration database as the original one client licence included with the Sirius 800. This enables routing and AHP control.	S800-AHPC
Additional Workbench Basic Router Control client licence – to control Sirius 800 (Video & Audio routing and AHP) from more PCs. One licence needed per client PC.	MCM-3001-F000
RollMechanic – RollCall network management tool. Enables storage and recall of processing settings from Sirius 800.	ROLLMECH
RollMap Enterprise Edition – enables storage and recall of processing settings from Sirius 800. Also allows RollMap screen design for RollMap softpanel control of routing and processing, for users familiar with RollCall control environments.	ROLLMAP-ENT
Workbench softpanel design – Design and configuration of custom softpanel screens (priced per day*).	DMIPNLD0
Design and Commissioning of RollCall & RollMap Control and Monitoring System Components (priced per day*).	ROLLMC

* For per day priced items, please contact Snell to discuss your requirements

∧ RollCall Input Processing Control Screen
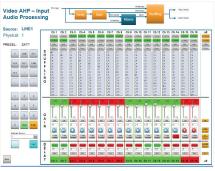
Configuration and Commissioning Services

To ensure smooth installation and commissioning of the Sirius 800, several other packages are available:

Pre-Delivery Configuration Services
Video Only Systems
Configuration services are recommended
DMIS830DB – Custom Database Configuration – Sirius 830
DMIS840DB – Custom Database Configuration – Sirius 840
DMIS850SDB – Custom Database Configuration – Sirius 850 Single Frame
DMIS850DDB – Custom Database Configuration – Sirius 850 Dual Frame

Video & Audio Routing and ALL AHP Processing Systems
Required for all systems with audio or processing
DMIS830ADB – Custom Database Configuration – Sirius 830
DMIS840ADB – Custom Database Configuration – Sirius 840
DMIS850SADB – Custom Database Configuration – Sirius 850 Single Frame
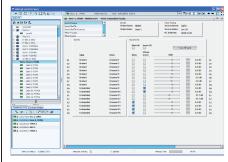DMIS850DADB – Custom Database Configuration – Sirius 850 Dual Frame

RS 485 or
Ethernet
Connection

Sirius 840

Ethernet

Monitoring Output

Routing Control Panels
Snell offers a large range of control panels to control standard video and audio routing. Processing is not supported by the control panels.

6026776 – 2RU dial-up XY panel. Route all sources to all destinations.

6028000 – 1RU 72 high density button panel BPX or XY operation. Route 36 sources to 36 destinations, or up to 72 sources to 1 destination.

6028100 – 1RU 36 standard density button panel. BPX or XY operation. Route 18 sources to 18 destinations, or up to 36 sources to 1 destination.

60282011RU 18 standard density button panel. BPX or XY operation.

6026KKT – 48-Key LCD Control Panel with LCD Touchscreen Control of routing and processing within Sirius 800, with SmartSearch capability. Control of video and audio routing with groups and "smart search" capabilities.

7028071 – 15-Key LCD Large Button Control Panel with Rotary Encoder Knob

6028251RC – 1RU 39 button + rotary control. BPX or XY operation. Page srolling. Configurable number of sources and destinations, SmartSearch capability.

6026783RC – 2RU 71 button + rotary control. BPX or XY operation. Page srolling. Configurable number of sources and destinations, SmartSearch capability.

Multiviewer
Video Content & Audio

˄ Monitor Output Screen

On-Site Commissioning Services
Required for all Sirius 800 with AHP or audio
Recommended for Sirius 800 with standard video only modules (no AHP or audio)

DMIS830COMM - Router Commissioning (per frame): Sirius 830
DMIS840COMM - Router Commissioning (per frame): Sirius 840
DMIS850SCOMM - Router Commissioning (per frame): Sirius 850 (single frame)
DMIS850DCOMM - Router Commissioning (per frame): Sirius 850 (dual frame)

Multiviewer Outputs Increase Capacity

Up to 140 additional outputs are available to feed Snell or other external multiviewers, without affecting the core routing capacity.

Intelligent Reference Switching Eliminates Configuration Changes

For internal references allow multi format switching. Auto detection of input format means the correct switching reference is used with no user interaction needed.

All references can be derived from a single reference input, simplifying system cabling.

Unique Catsii Technology Simplifies Commissioning and Maintenance

The Signal format on every video input and output is easily identified by color coded connector illumination. Individual connectors can be clearly identified when selected from the front panel control.

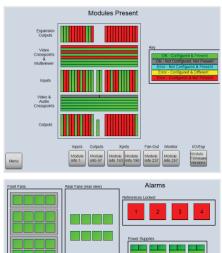**Door Touchscreen for Comprehensive Status Indication and Control**

The touchscreen interface allows quick and easy access to a range of status screens that show router status, and allow emergency control and Catsii setup.
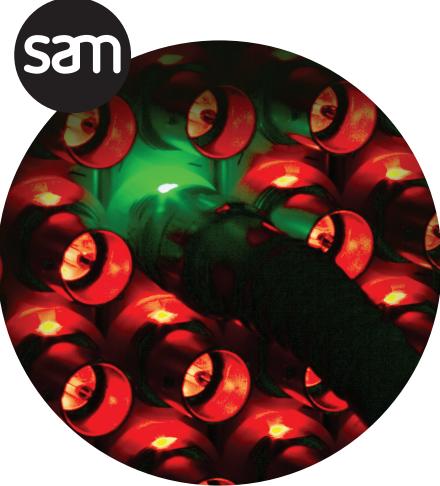
Flexible Output Monitoring

Four independent monitoring outputs can be used to monitor any input or output across the whole chassis. Each can be configured for video or audio monitoring, as required.
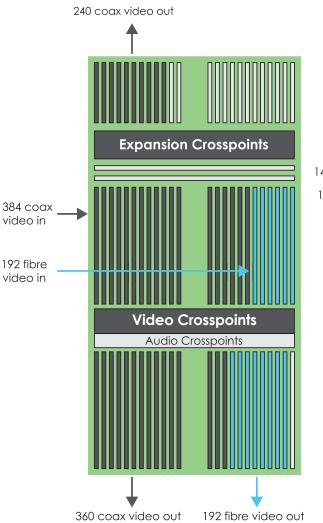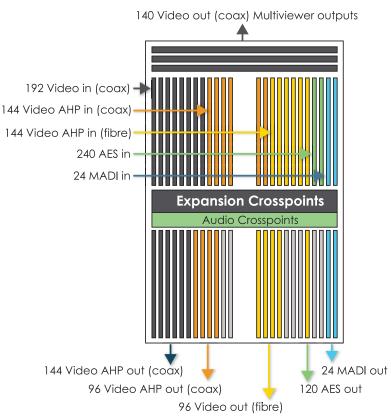

⌒ Unique Catsii™ Technology

⌒ Example Status Screens

Sirius 800 frames can be equipped with any combination of input and output modules. Some typical examples are shown below.

240 coax video out

Expansion Crosspoints

384 coax video in

192 fibre video in

Video Crosspoints

Audio Crosspoints

360 coax video out   192 fibre video out

140 Video out (coax) Multiviewer outputs

192 Video in (coax)
144 Video AHP in (coax)
144 Video AHP in (fibre)
240 AES in
24 MADI in

Expansion Crosspoints
Audio Crosspoints

144 Video AHP out (coax)   24 MADI out
96 Video AHP out (coax)   120 AES out
96 Video out (fibre)

Sirius 850 Used for Video Only Routing
• This example 576 x 792
• Mixed Coax and fiber inputs and outputs
  (CWDM also available)
• Full redundant crosspoint protection
• Maximum capacity in one chassis 576 x 1152
• Expandable in a second chassis to 1152 x 1152

Sirius 840 Hybrid Video and Audio Routing
• 480 x 476 video
• 144 de-embedding & processing inputs
• 96 embedding & processing outputs
• 240 x 120 AES
• 24 x 24 MADI

This example overall routing size:
• 480 x 476 Video
• 6624 x 4848 Audio*

*Assuming 16 channel embedding on video

SAM Router Selection Grid

	Halo	Pyxis	Vega 2RU	Vega 4RU	Vega 7RU	Sirius 600	Sirius 830	Sirius 840	Sirius 850 (single frame)	Sirius 850 (dual frame)
Size	8 x 8 to 32 x 32	17 x 17 to 272 x 272	Fully flexible 95x1 to 1x95	Fully flexible 191x1 to 1x191	Fully flexible between 144x288 to 288x144	64 x 64 up to 256 x 256	Up to 288 x 288	Up to 576 x 576	Up to 576 x 1152	Up to 1152 x 1152 (up to 2304x2304 available)
Formats										
3Gbps		●	●	●	●	●	●	●	●	●
HD	●	●	●	●	●	●	●	●	●	●
SD-SDI	●	●	●	●	●	●	●	●	●	●
DVB-ASI	●	●	●	●	●	●	●	●	●	●
Telco	●	●	●	●	●	●	●	●	●	●
AES		●	●	●	●	●	●	●	●	●
Fiber connectivity			●	●	●	●	●	●	●	●
Time code		●				●				
RS422 machine control		●				●				
Analog video						●				
Stereo analog audio		●				●	●	●	●	●
MADI		●				●	●	●	●	●
Features										
Redundant crosspoints			●	●	●	●	●	●	●	●
Redundant control card		●	●	●	●	●	●	●	●	●
Redundant power supply	●	●	●	●	●	●	●	●	●	●
Front loading hot swappable modules		●	●	●	●	●	●	●	●	●
Dolby® transparent (embedded and AES as applicable)	●	●	●	●	●	●	●	●	●	●
Dolby® switching compliant	●	●	●	●	●	●	●	●	●	●
Integrated audio processing		●	●	●	●	●	●	●	●	●
Video clean switching	●	●	●	●	●	●	●	●	●	●
Number of video references	1	3	4	4	4	3	4	4	4	4
Internal control system	●	●	●	●	●	●	●	●	●	●
Number of levels controlled	8	unlimited	2	2	2	8	unlimited	unlimited	unlimited	unlimited
I/O monitoring						1	4	4	4	4
Simple SNMP router control & monitoring	●	●	●	●	●	●	●	●	●	●
Advanced SNMP router control & monitoring		●	●	●	●	●	●	●	●	●
Frames & Control										
Physical size (including redundant PSUs)	3RU	1RU or 3RU	2RU	4RU	7RU	4RU (64 x 64) 7RU (128 x 128) 16RU (256 x 256)	17RU (288 x 288)	29RU (576 x 576)	38RU (576 x 1152)	2 x 38RU (1152 x 1152)
Centra control	●	●				●	●	●	●	●
Applications	Smaller facilities, cable head ends, monitoring	Smaller facilities, edit suites, audio production areas	Small/medium facilities, lines in, monitoring	Small/medium facilities, lines in, monitoring	Small/medium facilities, lines in, monitoring	Medium size facilities, playout areas, small/medium OBs, mixed signal format environments	Line routing/switching centers, medium/large OBs, playout facilities	Line routing/switching centers, medium/large OBs, playout facilities	Line routing/switching centers, medium/large OBs, playout facilities	Line routing/switching centers, medium/large OBs, playout facilities

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