

Opera Series

Multi format SD Video Processing Hub



Echolab's Opera is the most flexible Standard Definition production switcher on the market today. Its unique dual format design with internal frame synchronizers and frame buffers makes Opera the perfect switcher for production systems that are upgrading from analog to digital.

Opera can be installed into an analog system without additional conversion gear. Input modules are either analog or digital and output modules are always simultaneous analog and digital. The modular architecture of Opera provides a cost effective means of transitioning from analog to digital at your own pace.

Opera is also loaded with a generous number of linear keyers, chroma keyers and DVE's. The technical director can comfortably create any look with the powerful effects capabilities of the Opera series of switchers.

Opera Key Features

- Dual Format Support
Ease the transition from analog to digital and continue to use existing analog equipment
- Internal Floating Frame Synchronizers
Simplify system installation by eliminating costly external equipment and directly accepting un-timed feeds
- Internal Floating Frame Buffers
Store multiple stills and keys for instant access during live production
- Powerful Effects Engine
Multiple DVE channels and keys

The Opera dual format live production switcher is designed to meet the needs of any digital production system or any analog system transitioning to digital. It can be seamlessly installed into an analog only or mixed format studio. The flexible Opera input and output modules allow for a custom mix of analog and digital inputs and outputs. Opera internally converts from analog to digital and digital to analog and offers internal synchronization simplifying system design and reducing overall costs significantly. Conventional SDI switchers require conversion and synchronization to be carried out externally. Which can have significant impact on the overall system design; increased cabling, increased power consumption and increased equipment costs (see figure 1). Opera simplifies installation with its built in conversion and synchronization options (see figure 2).



Opera Input Modules

There are two types of Opera input modules; analog and digital. Each module supports 4 inputs. Any combination of input modules can be configured into an Opera chassis allowing for up to 32 input channels.

Digital module

The digital module has been optimized for robust SDI connectivity. SDI equalizers and reclockers provide reliable reception of all SMPTE 259M SDI signals.

Analog Module

The high quality analog module features a 5-line comb filter decoder and supports all standard analog formats; composite (PAL/NTSC), Y/C, component, and RGB. All processing is done at full 10-bit 4:2:2 resolution ensuring that quality is maintained throughout the system.

Opera Output Module

The Opera output modules support simultaneous SDI and analog output. All standard analog formats are supported; composite (PAL/NTSC), Y/C, component, and RGB. 12-bit DAC's provide a high quality analog signal that can be sent to analog devices with confidence. The Opera chassis can be populated to support up to 16 output channels.



Internal Floating Frame Synchronizers

Typical production systems can have a number of un-timed feeds such as satellite, remote studios or microwave links. These feeds must be synchronized before they can be fed to the production switcher. The Echolab Opera series of switchers offer internal frame synchronizers that can be purchased for each of the available inputs. The synchronizers can be dynamically assigned to any input. Internal frame synchronizers are advantageous as they reduce cabling, reduce power consumption, save valuable rack space and allow for fewer points of failure.

Internal Floating Frame Buffers

Frame buffers are valuable in any production environment. For certain applications a few frame buffers can replace a dedicated clip/still store. The Echolab internal frame buffers offer tremendous flexibility with an easy to use workflow. Internal frame buffers simplify installation, reduce power consumption and save valuable rack space. The frame buffers can be dynamically assigned to any input. This flexibility allows the Technical Director to configure the switcher to his or her workflow. A still can be captured from any input and stored into the floating frame buffer. Lower thirds and other CG can be transferred to the switcher using a Photoshop plug-in or an easy to use utility that downloads graphic files to the mainframe via Ethernet.



Aux Outputs

Opera has the most flexible auxiliary outputs of any switcher in its class. The auxiliary outputs can be dynamically assigned to show any signal from the switcher including program, preview, ME outputs and clean feeds. There is no limit on the assignment capability of the auxiliary outputs. For example, clean feed can be duplicated on every auxiliary output if needed.

Opera Specifications

General

Video Processing	10 bit 4:2:2 Serial Digital
External Reference	Digital Genlock
Status Indicators	Yes, LED

Dimensions 16/16 Chassis

Width	17" (43.18cm)
Height	10.4" (26.42cm)
Depth	13.74" (34.9cm)
Size in RU	6RU

Dimensions 32/16 Chassis

Width	17" (43.18cm)
Height	17.8" (45.21cm)
Depth	13.74" (34.9cm)
Size in RU	11 RU

Inputs

Number of Inputs	8 - 32
SD-SDI (SMPTE 259M)	Yes
Analog YPbPr Component	Yes
Analog RGB Component	Yes
Y/C (S-Video)	Yes
Composite (CVBS)	Yes
Input "Self Timing" Window	+/- 18uS
Auto Equalization	280 Meters Max
Return Loss	15dB Minimum

Outputs

Number of Outputs	4 - 16
SD-SDI (SMPTE 259M)	Yes
Analog YPbPr Component	Yes
Analog RGB Component	Yes
Y/C (S-Video)	Yes
Composite (CVBS)	Yes
Output Signal Level	750-850 mV p-p
Rise/Fall Time	400pS Min / 800pS Max
Overshoot	8% Maximum
Additive Jitter	25 pS p-p Typical
Program Output	User Configurable
Preview Output	User Configurable
Aux Outputs	User Configurable
Clean Feed	User Configurable

Supported Native Resolution

NTSC	Yes
PAL	Yes

Power

Single Power Supply	Standard
Redundant Hot Swappable Power Supply	Optional
Input Voltage	100-240V, 4A, 50-60Hz
Power Usage	200W Max

Connectivity

Edit Port (RS 422)	1
Serial Port (RS 232)	1
Ethernet	10/100
Tally	32 Mappable Tally Relays
GPIO	3 In, 2 Out Programmable
External Memory	Compact Flash

Protocols

VDCP	Yes
Compix	Yes
Pixel Power	Yes
Avitech Multi-Monitor	Yes

User Configurations

Number of User Modes	8
User Mode Interface	PC Based
Source Naming	Yes
Source Mapping	Any Source to Any Crosspoint
GPIO Events	User Programmable
Native Resolution	User Programmable
Network Settings	User Programmable

Features

Internal Frame Synchronization	Optional
Internal A to D and D to A Conversion	Yes
Simultaneous Analog and Digital Output	Yes
Upstream Keyer	Yes, See Panel Specifications
Chromakeyer	Yes, See Panel Specifications
Downstream Keyers	Yes, See Panel Specifications
2D DVE	Yes, See Panel Specifications
Frame Buffers	1 with Alpha Channel
Capture to Frame Buffer	From Any Input
View Modes	Frame, Field 1

Documentation / Support / Warranty

Installation Guide	Yes
Operation Manual	Yes
Training DVD	Yes
OnSite Commissioning	Available
OnSite Training	Available
24/7 Lifetime Phone Technical Support	Yes
Warranty	Full 3 Year
Free Firmware Upgrades	Lifetime



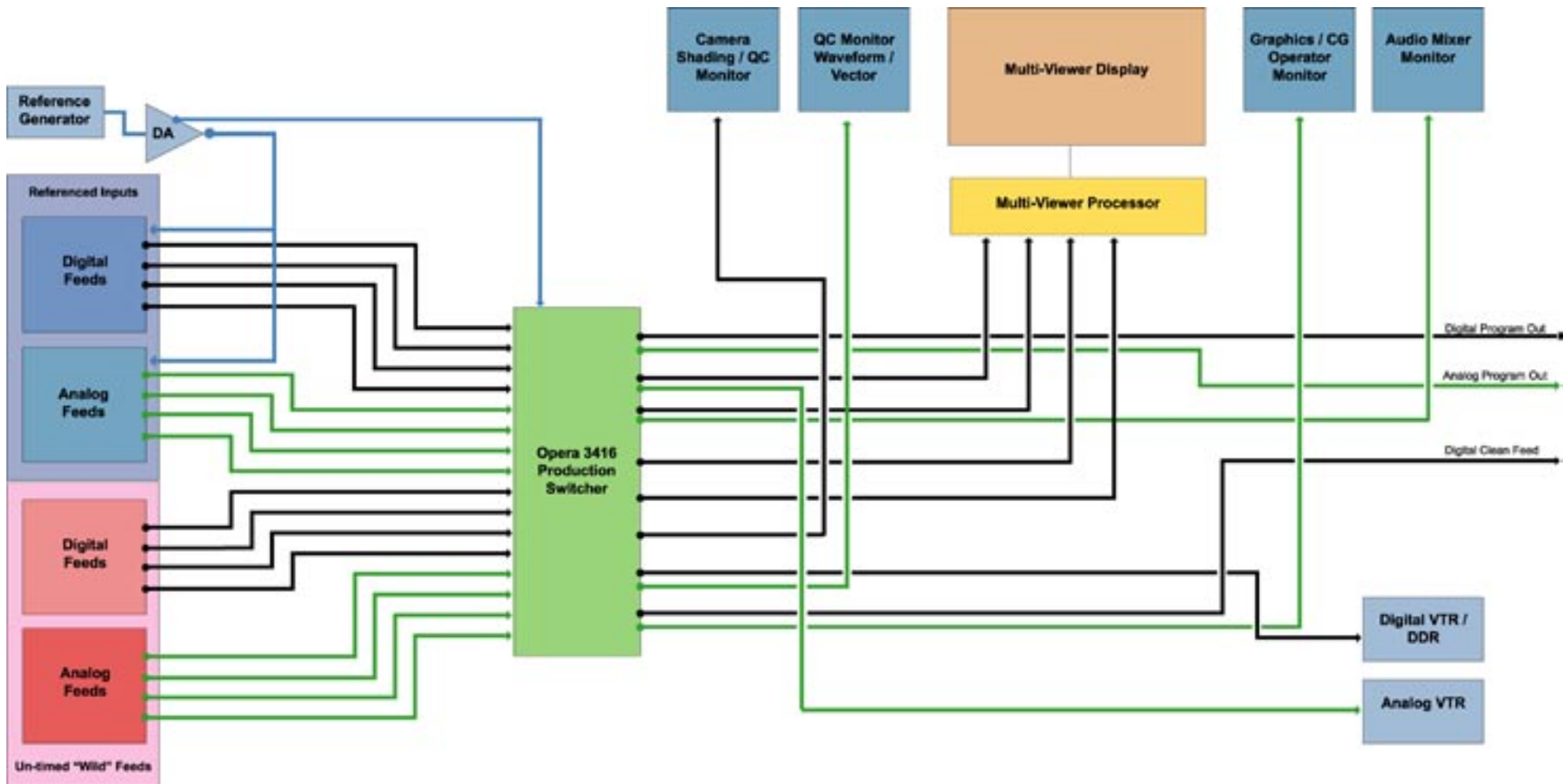


Figure 2: Opera simplifies installation with internal conversion options

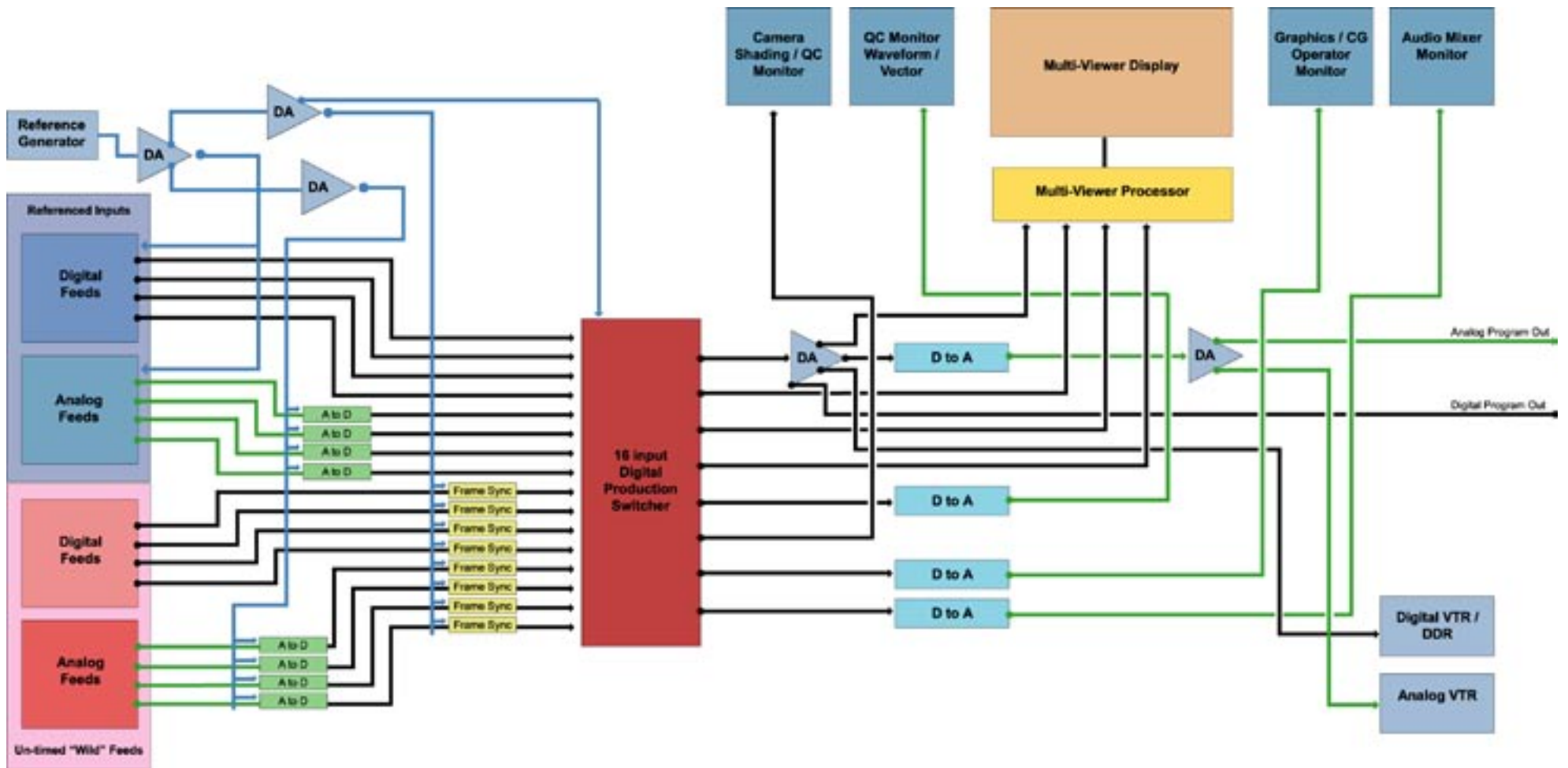


Figure 1: A typical production switcher installation requires additional conversion gear and complex cabling.