AMPEX
CENTURY SERIES
PRODUCTION SWITCHERS

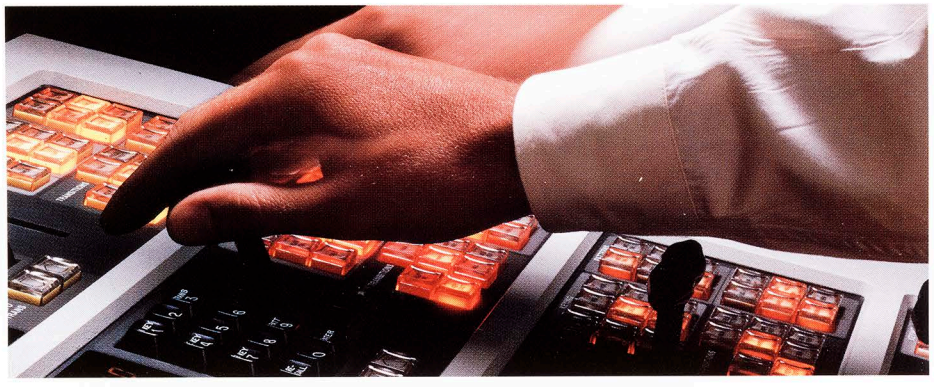
AMPEX

AMPEX CENTURY SWITCHERS: THE POWER FOR CREATIVE MINDS

IN DEVELOPING the Century™ Series switchers, we paid careful attention to the opinions of production professionals. As a result, you'll find, as have these professionals, that the switchers described in this brochure will meet or exceed your most demanding expectations.

"Groupe André Perry, Ltd. has always been proud of its reputation for graphics and special effects. For years, our facility in Montreal built its reputation using an Ampex AVC-33 switcher. We were so pleased with the superior keying capabilities of the Century switcher that when we built our new facility in Washington, D.C., two Ampex 330 Century Series switchers were installed.

For a year now, the two switchers in the Washington, D.C. facility have proved to be an excellent choice for the post-production environment, especially



with emphasis on graphics and special effects.

We have been extremely pleased with enhancements recently made to the Century Switcher. Finer keyer gain control allows our editors to make even better keys. The expanded Bus Keyer capabilities, which allow border-modify, key insert, and frame-accurate transitions on all the Bus Keyers, now makes all three keyers for each M/E virtually identical in capabilities. The ability to store QUAD Bus assignments and all 16 AUX Bus assignments in Panel-STAR Memory has increased the efficiency to create and recreate complex effects. Our editors have been very pleased with these new capabilities which give them the illusion of having a larger switcher to work with. Complex graphics and special effects are created with more efficiency and less generations.

From an engineering standpoint, the Century switchers have been as stable and more reliable than any large production switcher that I have ever worked with. We find the ability to use the data terminal for diagnostics and to status/program switcher set ups to be extremely useful. The installation of a large production switcher in a sophisticated post-production facility is always complex, but we found designing the installation of the Century to be easier and more versatile than other switchers of comparable capabilities."

John Wesley Nash
Groupe André Perry, Ltd.
Washington, D.C.

"The most powerful switcher that is marketed today, is by all means the Century 330.

As one of the most reputable post facilities on the East Coast for commercial post production, the demands that are made by our clients do not surpass the capabilities of the switcher. What allows this are the keying capabilities on every bus and every key. To top this, the switcher has a mask for each key that is independent of the other. No matter what you set up on any bus, you can instantly swap from one to another or just move it, without swapping, memorizing color, mattes, masks, etc. This is very important, since art and creative directors always have just "one" more thing to add. Our switcher is eight months old now and its signal levels are very steady, no drift at all.

The other major advantage is the external AUX switcher with nine inputs that we use for ADOs, Digi-Mattes, Paint Box, Abekas and so on.

After checking out the other major switchers at the last NAB show, for the intricate type of work we do, there was no other switcher with all the masks, individual drop shadows, borders, luminance or matte and matte-fill that one bus can do. That made it an easy decision."

Gary Princz
PrinczKo Productions
New York, NY

"Our Century 330 switcher was placed on-line in August of 1987—in 18 months of use, we've had no down-time.

We use the Century for all of our live programs, plus all of our studio production work. The keying capabilities of the Century are the best we've seen. We have had good luck with the Composite Chroma Keyer using signals from a remote pick-up.

All of our Operators have their set-ups stored on their own disks. They all use the panel memory function extensively with effects stored for use with an ADO-2000, which is interfaced with the Century."

Bill Eschbach
WAVE-3
Louisville, KY

"We've found that we use the Century's SPECTRAKEY constantly for RGB chroma keys because the shadows look so natural. With the normal RGB chroma keys it's really difficult to remove color fringing but with SPECTRAKEY, it's a breeze. We also liked the idea that we could choose from a series of Century models one that fit our facility perfectly."

Guy Olaïsola
TELETOTA
Paris

THE POWER OF CHOICE

The Ampex Century Series offers you four basic switcher models. And because each of these basic models can be configured many different ways with dozens of features and options, you can have exactly the switcher you need to fit your application perfectly.

The *Century 335* system gives you a creative battery of 32 inputs and 3 M/E banks. The *Century 235* system also features 32 inputs, but includes only 2 M/E banks for less demanding applications, and smaller budgets. The *Century 315* system features 16 inputs and 3 M/E banks, while the *Century 215* system provides 16 inputs and 2 M/E banks. What's important to note is that you can select any or all of the options and features that follow for any one of the models you choose, whether it be the all-powerful *Century 335*, or the compact *Century 215*. This way, even a *215* can be loaded with power, or you can "design" a *335* to fit your budget. Whichever Century switcher you choose, you'll find its compact but powerful design compliments your creative talents.

Because all Century switchers offer three full-capability keyers in each M/E, you can key over one image, wipe to a second keyed image, then add a third on top of both.

Each M/E includes three full capability keyers. A backlit display shows the key source selected, wipe pattern numbers, auto-transition duration time, fader status and air tally indication.

SuperSTAR™ Memory: A *panel oriented* memory system that will store and instantly access up to 48 entire switcher set ups.

Depending on the switcher configuration you choose, you can store and access all or any portion of either 24 or 48 set ups. Century switchers give you easy operation *and* the ability to reach a complexity in your productions never before possible because you may sequence setups, cut from setup to setup, or transition, with frame accurate timing. This memory system's unequaled ability to mimic, manage, memorize and manipulate will give you the ability to quickly accommodate last minute changes.

SuperSTAR Memory lets you change M/E reentries by swapping or copying setups among M/Es. For example, if you have created an effect on M/E 1, and want to create an effect upstream of this original effect, then it's easy to copy M/E 1 parameters to M/E 2 and create the new effect on M/E 1. The SuperSTAR Memory eliminates the time-consuming readjustments of each M/E.

Sequencing and setup editing are quick and easy, too. You can sequence and run any setups you designate, continually loop a sequence of setups, or manually step through a sequence, one setup at a time. For example, if you have an M/E with certain key parameters stored in one memory, you can change the way the M/E is set up with different key parameters and store that setup in a different memory. Then, as you transition between setups, the parameters transition also.

And with the SuperSTAR system's incredible LEARN mode, the switcher can repeat with absolute accuracy up to 18 minutes of switcher operation, including up to 15,000 button pushes, and 20 seconds of fader movement.

SPECTRAKEY easily keys on any color including smoke, glass and shadows. SPECTRAKEY setups require no external routing or timing, and can be stored in Key Memory.

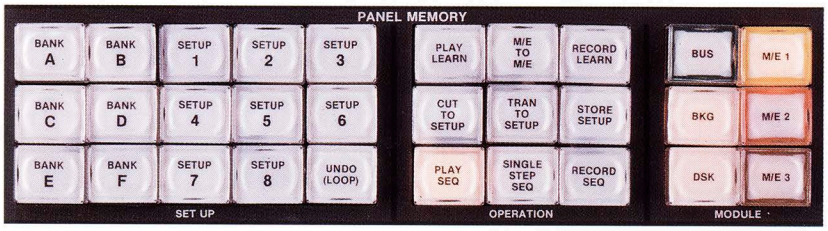
A dual disk drive system lets you store your own set ups for forthcoming production sessions and newscasts.

X-STAR™ is a *dual* disk drive system that can store up to 480 complete setups *on each disk*. Each disk will also store five SuperSTAR "Learned" setups, and five different switcher setup *configurations*. With it, you can format, copy, and edit "in-house" using standard 3½" disks. The system also offers some important day-to-day operational advantages. For example, each operator can have his or her own disk, with individual setups. Or, a disk can be created for specific programs, like "the six o'clock news."

Multilevel M/Es include three keyers, so you can key over one image, wipe to a second keyed image, and then add a third key, all in one M/E.

Each M/E includes *three* full capability keyers. Every keyer, including the downstream keyer, can do every type of key—linear, RGB, luminance, external, and encoded.

No switcher can match the Century Series' ability to transition among backgrounds and keys. Virtually *any* transition you can imagine can be done. Even auto transitions are pushbutton selectable to be linear or nonlinear in unique logarithmic, exponential or sinusoidal modes. And transitions can be defined in seconds and tenths of seconds, seconds and frames, or just frames.



The SuperSTAR Memory system's ability to memorize, recall and manipulate can reduce complex tasks to a few button pushes.

A Century switcher provides more keying power and flexibility than any other switcher in the world.

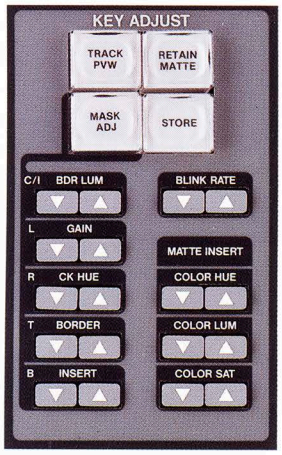
To save you time in every phase of production, KEY MEMORY will store *every* parameter of four separate and distinct key setups (two luminance-type, and two chroma-type) for each key source. And once stored, a key can be recalled by any other keyer on the switcher to appear exactly as it was stored.

Every keyer has its own independent KEY MASKING SYSTEM with individual control of each side of the rectangular mask. Of course, the masking circuitry is completely separate from the wipe patterns. For added convenience, masks can be stored in Key Memory. And each keyer function has its own INDEPENDENT MATTE GENERATOR, so you can use the colors you choose, rather than simply accepting those forced on you by some switchers.

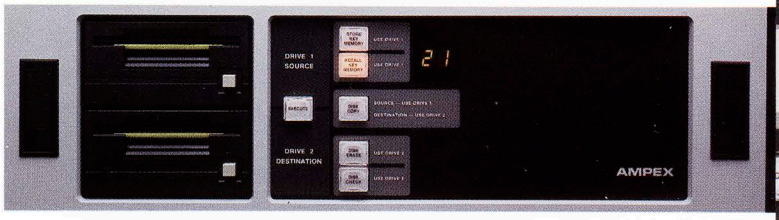
SPECTRAKEY™ is a proprietary chroma nulling process that eliminates edge sizzle and background spill. The system provides *analog* key border generators for each keyer and an encoded chroma keyer for each keyer location. SPECTRAKEY setups require no external routing or timing and can be stored in Key Memory. For maximum production flexibility, the Century switcher provides inputs for up to 30 external keys.

INDEPENDENT KEY SOURCE MIX RATES are individually adjustable for each key source, and can be stored in Key Memory for future use. Every keyer in the switcher accepts video from the key, the keyer's independent matte generator, or from a fill bus. Each of the M/Es and DSK key fills can be independently selected from a quad bus.

KEY PRIORITY MANIPULATION allows you to instantly change the priority level of keys set up in an M/E. It saves time and can provide unique production effects, especially when used as part of a SuperSTAR LEARN segment.

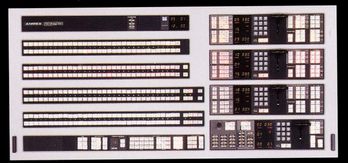


Each keyer function has its own independent matte generator, so *you* can choose the colors, rather than simply accepting those forced on you by some switchers.

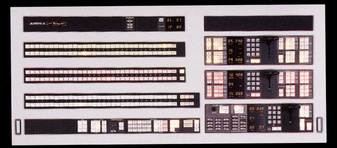


The X-STAR dual micro floppy disk drive system greatly expands the power of the SuperSTAR Memory system. With the X-STAR system, you can store up to 480 complete set ups on *each* disk, so you can store your own set ups for individual programs.

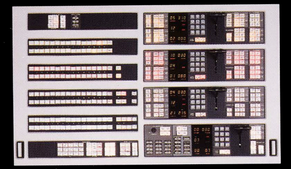
NEVER HAS SO MUCH POWER BEEN SO EASY TO CONTROL



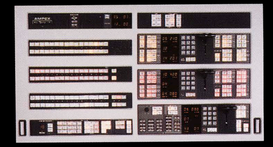
The Century 335: Three M/Es and 32 inputs.



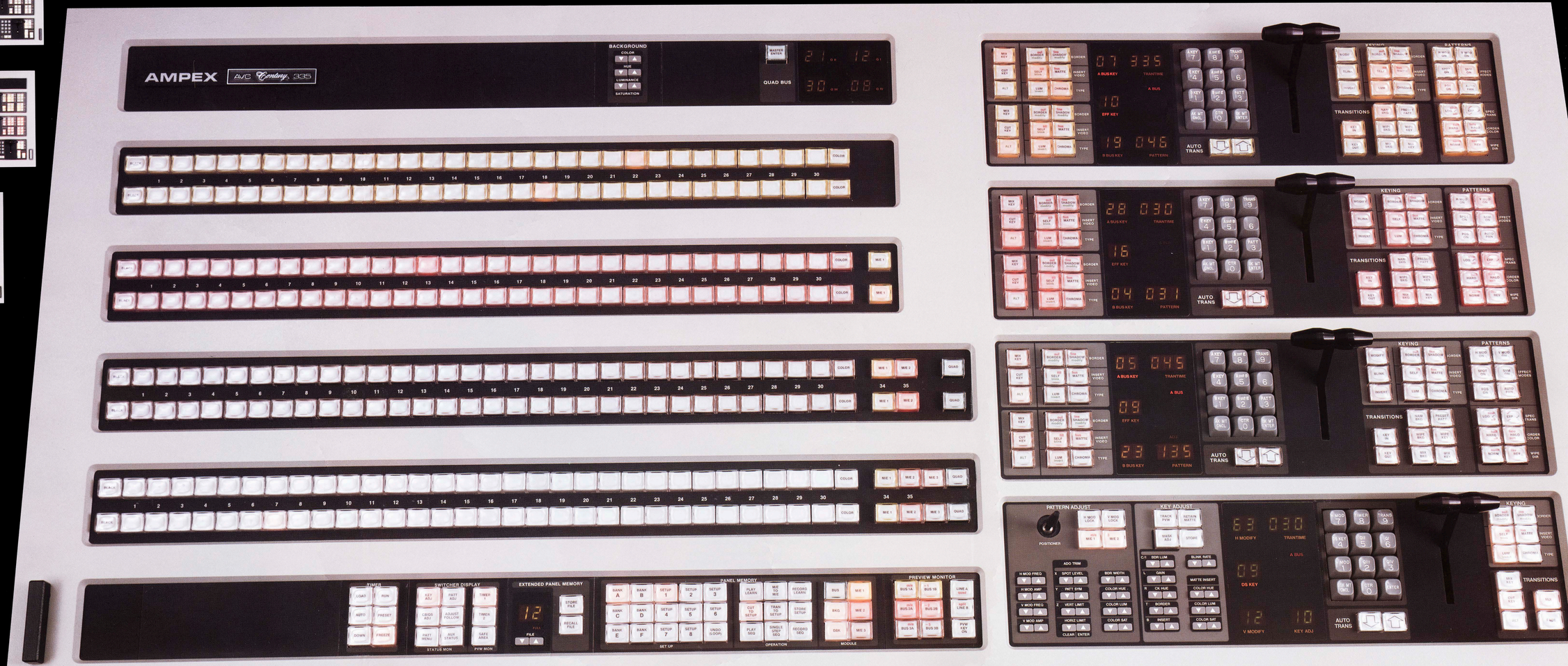
The Century 235: Two M/Es and 32 inputs.



The Century 315: Three M/Es and 16 inputs.



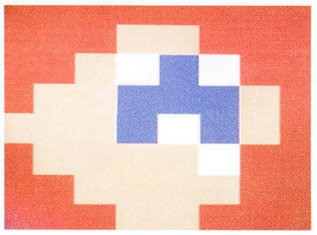
The Century 215: Two M/Es and 16 inputs.

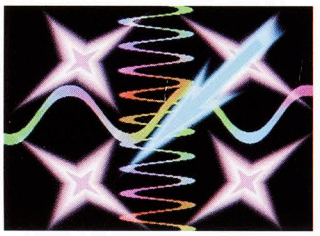


THE POWER OF QUALITY

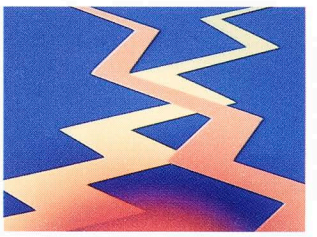
Century switchers from Ampex feature 164 standard wipe patterns, including rotating and matrix wipes. Independent pattern systems are dedicated to each M/E. Pattern borders can be either hard or soft, or can change from hard on one side to soft on the other. An AUTO PAN feature will automatically center any positioned wipe for you as it grows to fill the screen. This can produce unique, swooping three dimensional effects.

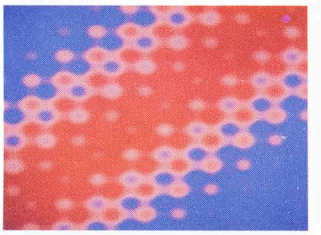
Borders appear crisp and clean, even when the pattern is made very small. And borders can be made exceptionally wide, almost filling the screen. This can give the appearance of two wipes with a single fader movement. All patterns except matrix wipes can be positioned and rotated. With Ampex pattern modifiers, you can change border hue over time, create multi-hued or rainbow borders, rotate, spin or oscillate patterns, change border width proportion to pattern size, and much more.





The Century Series' incomparable pattern system

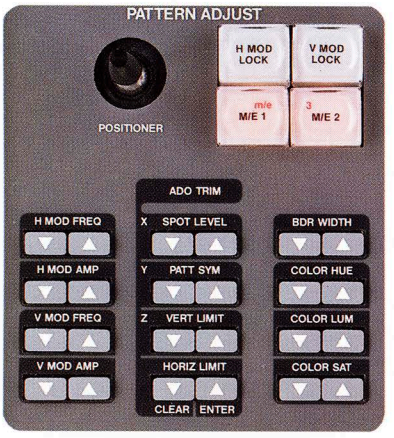




Superb quality analog key border generator and encoded chroma keyers

An analog key border generator produces smooth borders or drop shadows at any luminance value, and with colored outlines. On *all* keyers, drop shadows can be varied from zero, up to 14 lines deep. Key insert video can be decayed and delayed up to 14 lines to create very dramatic effects even from simple graphics.

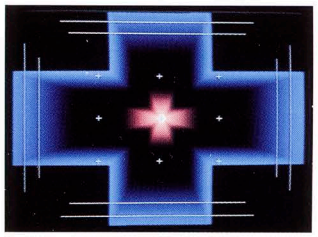
Each key border generator also includes an encoded chroma keyer that is fully integrated and fully timed. No external rack units or timing devices are required.



Logical, easy-to-use controls give you up/down pushbutton and joystick control over all pattern parameters.

Clock/Timer/Safe Area display is valuable for both live and post production applications

This feature provides up to two CLOCK/TIMER displays and a SAFE AREA display keyed over the preview monitor. The clock/timer displays will count up or down from any preset time manually, or automatically, whenever



SMPTE safe action and safe title areas are displayed to provide you with a fast, easy-to-use reference. A highly functional clock timer is also included.

the video output from the switcher is changed. The safe area display shows SMPTE safe title and safe action areas (safe title only in PAL), plus centering and alignment cursors.

Switcher Status/Diagnostic CRT display keeps you fully informed

Every parameter of your Century switcher can be displayed in easy-to-read bar graph form. Fader status, direction, and travel are shown, along with pattern modifier menus, error and operating messages. A flip of a switch converts the status display to a detailed diagnostic display to assist in maintenance and troubleshooting.

Quad and Auxiliary Buses provide convenience and flexibility

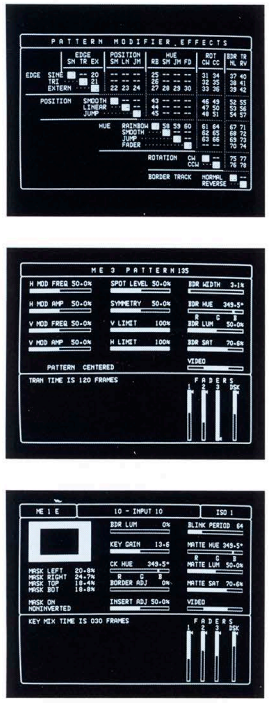
Four separate QUAD BUSES with DA outputs are provided to feed digital effects or other devices. These quad buses can select from all primary switcher inputs. Century switchers can also internally accommodate up to 16 *auxiliary* video buses. These video buses can select from all primary switcher inputs, plus all M/Es and Program output (fully timed). Individual aux and quad bus set up parameters can be stored in any one of several different SuperSTAR Memory modules, depending on the required operation of the bus.

Auxiliary buses can be video-only, audio-follow-video, key-follow-video, audio breakaway, or key breakaway. Any combination of video, audio and key buses can be controlled. When individual buses (Video/Audio/Key) are mapped together in groups, then a total number of groups not to exceed 16 can be controlled. A selection of auxiliary control panels are available to match your requirements.

A complete audio system provides AFV from any switcher M/E or from the downstream system; AFV and audio breakaway auxiliary buses; audio under editor control, and full manual control.

Backup systems for piece-of-mind

Production schedules can't tolerate downtime, so there are redundant backup systems available for every Century switcher. Both the control console and the signal system can have backup microprocessors and dual power supplies. And the SuperSTAR, Key, and operating memories are protected against power failure for up to two weeks.



The switcher's status display shows switcher setups in logical, easy-to-read bar graphs.

THE POWER OF FLEXIBILITY

Part of the measure of a switcher's power is how well it interfaces with other equipment. Century Series switchers are designed to integrate easily into your studio. For example, one RS-422 serial cable is the only connection required between the console and the electronics bay.

These advanced switchers interface with all major editing systems by using a general purpose serial interface (GPSI) which is PWA mounted within the system. In addition, the GPSI has peripheral interface ports (PIPS) which can be either RS-232 or RS-422 for easy interface to routing switchers, character generators and other devices.

The Century switcher's ADO™ GPSI port lets you select, trim and run the ADO system's effects right from the console, controlling up to four ADO channels at one time. You can even use the full Century pattern border capability around the ADO system's effects!

The ADO INTERFACE lets you build complex effects that can be controlled easily by a single button push at the switcher. Since a whole Century/ADO setup can be stored in SuperSTAR Memory, you can use the switcher to build a three M/E effect involving ADO keys and moves, select inputs to the ADO system, and set up all other switcher parameters. The ADO system moves can then be done using the switcher's faders or auto-transitions, or they can be part of a complex transition of the entire switcher from one memory to another.

An AVC/ADO MECHANICAL INTEGRATION PACKAGE integrates the Century and ADO control panels together in a single unit, including provisions for mounting options such as the AVC audio system, auxiliary control panels, and the X-STAR disk control.

The Century switcher's KEY SWITCHING MATRIX is a 16×4 routing switcher designed to provide input signal switching for an ADO system's Digi-Matte™ key signal effects processor. Sources can be from either the Century, or from character generators, video art systems, or other external devices. The individual buses of the Key Switching Matrix can be mapped to a primary video bus, or to either a video aux bus or a quad bus. This provides key-follow-video for whatever video buses are providing video input to the ADO system.

The Ampex Century Series switchers: Flexible power to further your creative genius, designed for the way you use a switcher today, and tomorrow.

AMPEX CENTURY SERIES SPECIFICATIONS

Input Characteristics

Primary Input	Loop-through bridging; 1.0V P-P composite video
RGB Chroma Key Inputs	0.7V P-P video, with or without composite sync
Reference Video Input	1.0V P-P composite video; non-loop through input, 75Ω termination
Return Loss	>-40dB, at subcarrier frequency, with external 75Ω termination

Output Characteristics

Output Impedance	75Ω, all outputs
Line Outputs	PGM, 2 outputs; Master Black, 1 output; DSK Black, 1 output
Monitor Outputs	M/Es, 3 outputs (A-bus, B-bus, M/E output) PGM bus, 1 output PST bus (PGM B), 1 output Quad Split (when Q/S system installed), 1 output Key PVW system
Aux Bus Outputs	2 outputs per aux bus
Return Loss	>-37dB, at subcarrier frequency

Video Performance

Frequency Response	±0.2dB; 100 KHz - 5 MHz +0.2, −0.5 dB; 5 MHz - 8.0 MHz Smooth rolloff above 8.0 MHz
Line Tilt (IEEE window signal)	≤1.0%
Field Tilt (IEEE window signal)	≤1.0%
Chrominance/Luminance Gain Inequality	<1.0 dB
Chrominance/Luminance Delay Inequality (12.5T Modulated Pulse)	<10 ns. max.
Differential Gain	± 1.5%; 10-90% APL
Differential Phase	± 1.5°; 10-90% APL
Dynamic Gain	± 1.0%; 10-90% APL
Signal/Noise Ratio	>60 dB P-P video (1.0V reference to RMS noise (unweighted), 10 KHz to 5 MHz
Crosstalk	Better than −55 dB at subcarrier frequency
Path Length Accuracy	1.0° at subcarrier frequency
Video Switch	Approximately 1 μs during vertical interval
K Factor (2T Pulse)	≤1.0%
Crossfade Gain Linearity	±0.5% luminance, ±1% chrominance
Crossfade Phase Linearity	±1°

Power

Power Supply	Diode coupled, dual redundant power supply with battery back-up
Battery Back-up	5 days, nominal
Input	100/110/220/240 VAC; +10%, −15% plug programmable 60 Hz ± 2% 50 Hz ± 2% Ferro-resonant transformer
Power Consumption	Century 335: approximately 1.4 KW Century 315: approximately 1.3 KW Century 235: approximately 1.2 KW Century 215: approximately 1.0 KW

Tally

Relay	1 Form C; 24 V, 1A contacts
Tallied Inputs	All primary plus 2 external key inputs plus ME tally