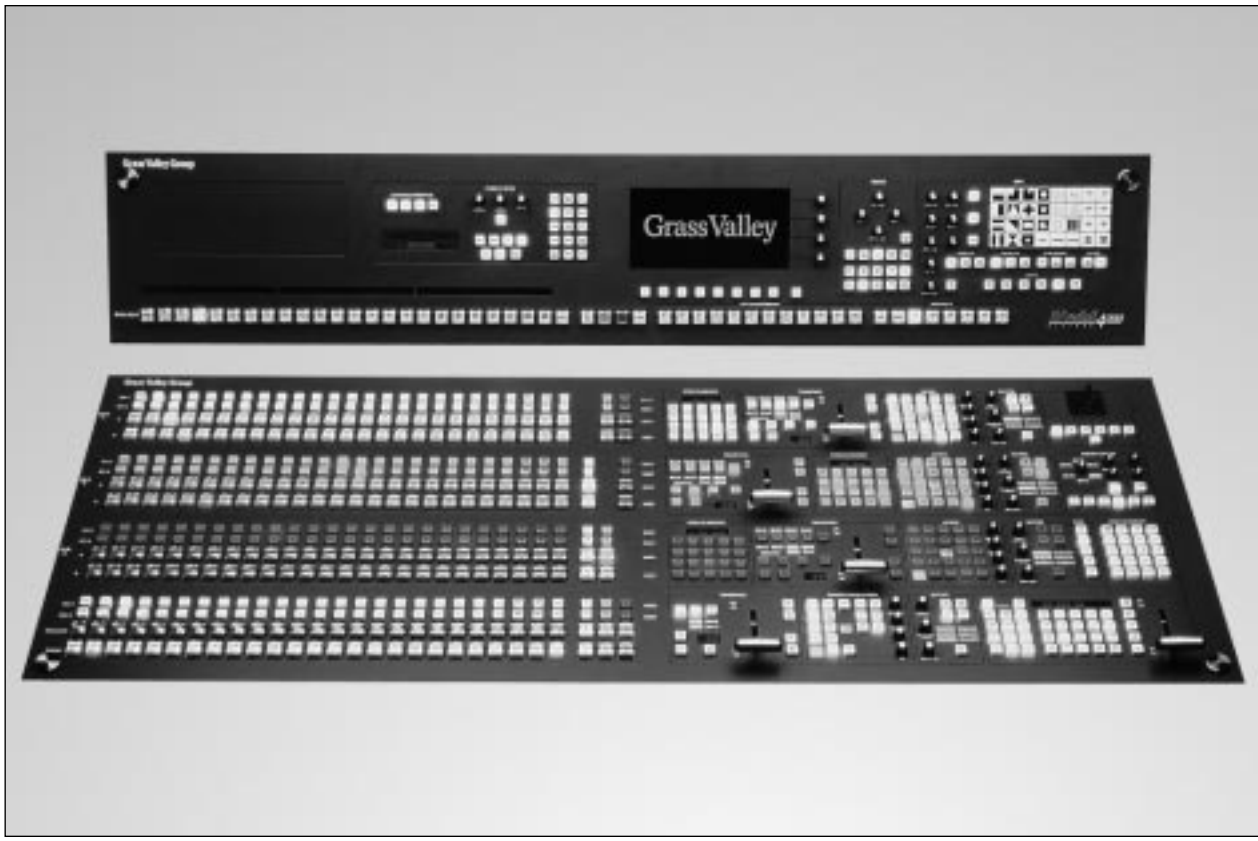
Tektronix

Grass Valley Model 4000 Series Component Digital Production Switchers



Model 4000-3

Supports 270 M/bits 4x3 and 16x9 Picture Format

Framestore and Maskstore with Effects like Pseudocolor, Drop-shadow, Re-size, and Positioning

Hot-swappable Modules Keep You On the Air

Independent Timelines and Time-Align Functions Provide Ease of Editing

Profile PDR Clip Recall and Control Features Integrate the Media into the Production Switcher

Two and Three Mix/Effects Systems with Program/Preset

E-MEM® Effects Memory System stores up to 100 timeline effects

Direct Panel Access to all Necessary Functions for Live Operation

Effects Send inserts External Video Effects in the Middle of Each Keyer

Lamina™ Image Layering Mode on Each M/E turns Background Busses into Key Layers

Chromatte™ Chroma Keyer with Auto-select mode and Foreground and Background Color Suppression

Total Digital Effects Integration with Krystal Digital Picture Manipulator

The Model 4000 production switcher advances the state-of-the-art for post production and live broadcast, utilizing component 4:2:2 digital signal processing for superior image quality and fidelity. Your system can also be configured for any combination of video and key inputs providing total flexibility. You can add up to 64 inputs for video and/or keying.

Three Powerful Versions

The 4000 Series production switchers eliminate many of the start-up costs and recurring maintenance expenses that are common with analog technology. With the combination of component video, advanced digital signal technology and sophisticated keying power, your creativity is infinite.

Model 4000-2A
Live or Post Power

- Full function control panel with 2 Mix/Effects (M/E) systems plus Program/Preset
- Up to 24 video inputs can be controlled directly from the control panel, plus another 24 shifted inputs
- Full length Program/Preset Mixer with mix and wipes and Dual Downstream Keyer (DSK)
- Unlimited effects re-entry of all M/Es

Model 4000-3
Live Broadcast Power

- NOW, with Wipes on Program/Preset!
- Full function control panel with 3 Mix/Effects (M/E) systems plus Program/Preset
- Dedicated E-MEM and individual key buses for each M/E
- Direct access to up to 24 video inputs, plus another 24 shifted inputs
- Full length Program/Preset Mixer with two downstream keyers
- Separate accessory control panel
- Unlimited effects re-entry of all M/Es

Model 4000-3T
Remote Live Broadcast Power

- Provides the same features as the Model 4000-3 plus the flexibility of separate sub-panels which fit easily into extremely tight spaces, such as mobile applications.

Effects Send Capability in each M/E

With Effects Send, you can feed digital effects devices like the Grass Valley Krystal 4300 with video and key sources from any Model 4000 M/E keyer. You can use the Effects Send system to "splice" the Krystal system into the M/E between the keyer and the compositing circuits, saving an additional keying operation.

Lamina Image Layering

Each M/E system includes two modes of operation. The traditional mode allows two foreground keys, with exchangeable priority, to be composited over the backgrounds. Lamina Image Layering mode allows 4-layer compositing within each M/E. The composited key from an M/E in the layering mode is available as a source or another M/E or the DSK for additional compositing.

Full Additive Mix

Six dual matte generators are included in each M/E. These provide independent color matte fill for the foreground keyers, Borderline® key edge generator and preset wipe borders. Each M/E includes a Full-Additive Mix (FAM) mode. FAM allows all four layers to be additively mixed together.

Advanced Emmy Award Winning E-MEM System with Key Framing

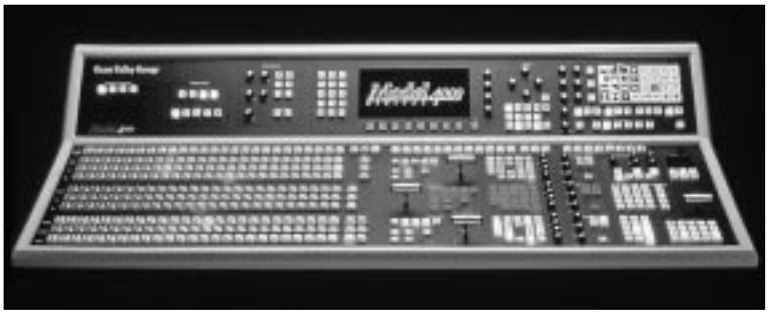
The E-MEM Timeline system is a very powerful tool in the development of complex effects. Time Align is one component of the system that makes it easy to move one element relative to another. You do not have to think about keyframe duration, calculations or adjustments. Simply move the elements visually, align it and all calculations happen automatically. The Model 4000 displays any timeline forward and backward independently or in any grouping as you build the effect. The standard E-MEM system provides storage for 100 complete switcher effects, and a 3.5" floppy disk drive is included for storage of E-MEM effects set-ups.

Pristine Chroma Keys and Borderline Key Edging

The foreground keyers can be enhanced with Chromatte Chroma Key. Advanced chroma key capabilities include background and foreground suppression and the Grass Valley patented Secondary Hue Suppression process to eliminate color fringing. All the keyers have their own individual matte generators and you can fit them with another Grass Valley exclusive - Borderline key edge generators.

Video, Key and Mask Framestore

You can precisely grab a video with its key signal to make layering of stills quick and easy. You also get a positionable drop shadow, real time video bit map effects, write after read, independently adjustable crop on video and/or key. The maskstore provides the ability to draw "garbage" masks into storage. And, the framestore and maskstore functions can be controlled by the E-MEM system.



Model 4000-2

Wipe System with Extensive Set of Patterns

This feature includes patterns that can be modified with rotation, pattern split, border width, border symmetry, border opacity, edge softness, aspect, vertical and horizontal multipliers, modulation and a rate controlled pattern positioner. A texture pattern allows the creation of randomized noise for unique textures. An optional Secondary Wipe Generator provides additional wipe pattern flexibility, such as pattern mix, within the M/E.

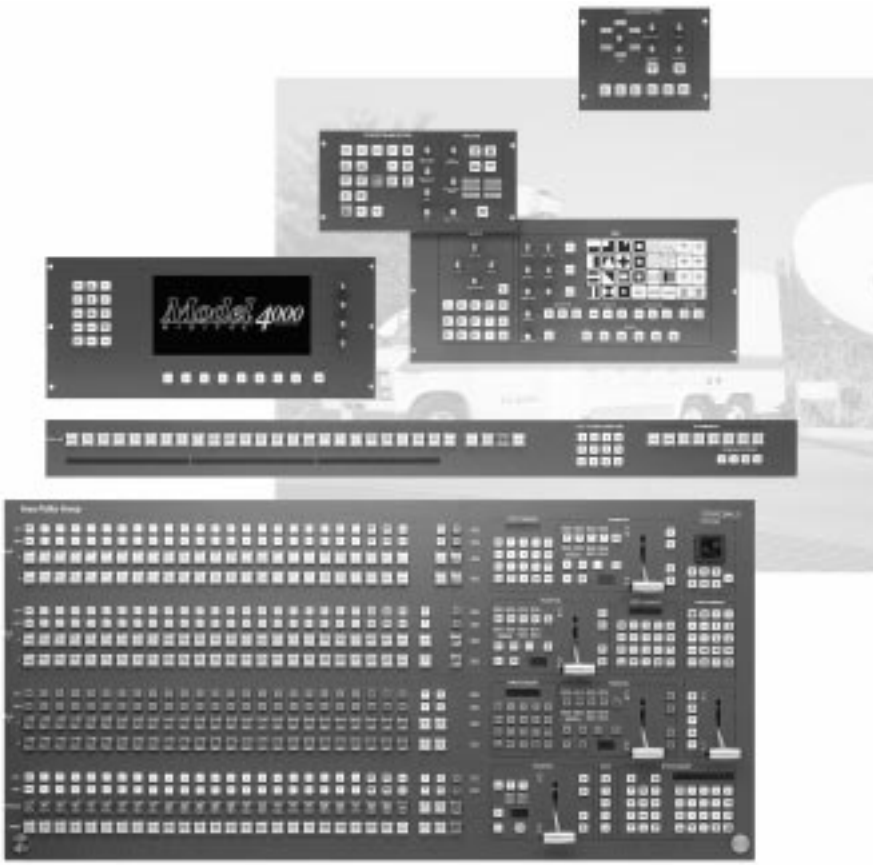
Standard Package Features

- Unlimited Mix/Effects re-entry
- Two full function keyers in each M/E
- Dual downstream keyers
- Wipes on the Program Preset bus for the Model 4000-2 (and now on the 4000-3 and 3T)
- Up to 64 inputs for use as video and/or key
- Analog and serial digital inputs
- Look-ahead preview and clean feed output for M/E
- Four effects send/auxiliary switching buses
- Borderline key edge generator for one keyer per M/E and DSK
- Dual chroma keyer for M/E 1, 2 and 3
- Automatic timing on serial digital inputs
- 16 Serial Digital inputs
- Serial Digital outputs for M/E preview, DSK, PGM/PST, and Clean Feed
- Tally Output main frame
- Full 10-bit digital input and outputs
- Extensive key masking capability in each keyer
- Six dual matte generators in each M/E
- Two dual background generators with independent wash
- Two dual matte generators for each downstream keyer
- Wash capability in every matte generator
- Non-Additive Mix (NAM) and Full Additive Mix (FAM) modes
- Wipe pattern mix
- New key priority transition mode
- E-MEM effects memory system with effects dissolve and sequencer
- 100 E-MEM registers
- Key frame-based effect within each E-MEM register
- 3.5” floppy disk drive for E-MEM data storage
- Personality programming for video and key input assignment
- Video processing in each M/E
- Lamina image layering on each Mix/Effects
- Built-in serial and GPI ports
- Safe title and action generator

Powerful Options

Some options are now included in our standard packaged systems.

- A second wipe pattern generator for all Mix/Effects
- Analog component chroma keyer inputs
- Chromatte advanced chroma keyer per Mix/Effects
- Borderline key edge generator for each keyer
- Look-ahead preview and clean feed output for M/E
- Video, key and mask framestore with mask draw
- Ten utility auxiliary switching buses for video or key
- Redundant power supplies



Model 4000-3T

Specifications

Inputs

Video - 64
Switcher accepts component serial digital inputs in groups of 8 which can be video or key, or up to 16 component analog video and 16 analog keys.

Outputs

Analog - DSK program video and switched preview video.
Component Serial Digital - Program video, or preview video, PGM/PST preview video, aux buses, clean feed video, mask, DSK program video or key, program key/clean feed (switchable), switched preview

4000-2A Control Panel

Dimensions	cm	in
Height	63.9	25.14”
Width	124.5	49.0”
Depth	20.3	8.0”
Weight	59kg	130lb

4000-3 Main Control Panel

Dimensions	cm	in
Height 15 RU	55.1	21.7”
Width	137.16	54”
Depth	21.9	8.625”
Weight	62.14kg	137lb

4000-3T Control Panel(s)

Contact your local Tektronix representative for control panel dimensions and weights.

4000-3 Accessory Control

Dimensions	cm	in
Height 15 RU	25.9	10.2”
Width	137.16	54”
Depth	16.5	6.5”
Weight	25.58kg	63lb

Switcher Frame

Dimensions	cm	in
Height 25 RU	111.13	43.75”
Width	48.3	19.0”
Depth	57.35	22.58”
Weight	136kg	300lb

Power Supply

Dimensions	cm	in
Height 7 RU	31.1	12.25”
Width	48.3	19.0”
Depth	55.88	22.0”
Weight	65kg	143lb

Power Requirements

Switcher Power Supply —
Consumption - 1600 Watts (Max); 1200 Watts (typical)
Voltage - 176-264 VAC
Frequency - 47-63 Hz
Control Panel —
Consumption - 300Watts
Voltage - 110/220 VAC (nominal)
Frequency - 47-63 Hz

Environmental Characteristics

Operating Ambient Temperature -
0-40 degrees C
32-104 degrees F
Ambient Temperature for Specification -
20-30 degrees C
68-86 degrees F
Relative Humidity - 95% Max (non-condensing)

Warranty

Products offered by Tektronix are manufactured to provide the highest level of reliability and performance. Tektronix warrants these products against defects in materials and workmanship in accordance with the warranty statement applicable with each product. If any product fails during the warranty period Tektronix will provide the remedy set forth in the applicable warranty. A copy of the warranty applicable to a particular product offered by Tektronix may be obtained from your nearest Tektronix office.

Technical Support

Time is money. Tektronix Customer Services saves you both — with a comprehensive portfolio of software and hardware support services designed to ensure maximum performance from your Tektronix Video and Networking Products.

Services include Installation Services, Complimentary Support, Advance Exchange, Technical Phone Support, Extended Services, On-Site Support, Customer Training and Software Maintenance. Financing options available. Custom service packages can be developed to meet specific organization and system needs.

For further information or the sales office nearest you, please contact:

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