

# SONY®

Multi-Format Switchers

## MFS-2000 Series



MFS-2000  
MKS-2010  
MKS-2015  
MKS-2017

## INTRODUCTION



MFS-2000 Multi-Format Switcher Processor



MKS-2010 (1 M/E Control Panel)

## All-round High Performance

*Sony introduces a new member of our switcher family, the multi-format MFS-2000 Series.*

*Packed in an extremely compact chassis, the MFS-2000 Series of switchers is intended for use in small-scale OB vehicles, production studios and editing suites. Its multi-format capability allows it to operate in any current SD or HD format, making it suitable for productions both today and tomorrow.*

*Three types of control panel are available, each built to provide a high level of operational performance.*

*The MFS-2000 is supplied with a range of powerful features. In addition, a 2-channel DME function with various preset effect patterns, including nonlinear capability, a powerful frame memory system and an RGB color corrector function are all available as options. What's more, the MFS-2000 Series offers many operational benefits such as an easy-to-operate color touch-screen LCD panel and a FlexiPad™ control panel with color LCD buttons.*

*The MFS-2000 Series represents an ideal combination of power, size, versatility, and cost-efficiency.*

# KEY FEATURES FOR VERSATIL SYSTEMS

## Multi-format Capability

The MFS-2000 Series is a sophisticated switcher system available in both standard definition and multi-format configurations. The resolutions and frame rates for each configuration are listed below. All standard definition configurations can easily be upgraded to a multi-format system with minimal cost, simply by upgrading the software. This flexibility allows users to choose a switcher that meets their budgetary, operational, and future needs.

- Multi-format configuration:
  - 1080i/59.94, 50
  - 1080p/29.97, 25, 24, 23.976
  - 720p/59.94
  - 480i/59.94
  - 576i/50
- Standard definition configuration:
  - 480i/59.94
  - 576i/50

## Switcher Features

The MFS-2000 Series provides a multitude of switcher features:

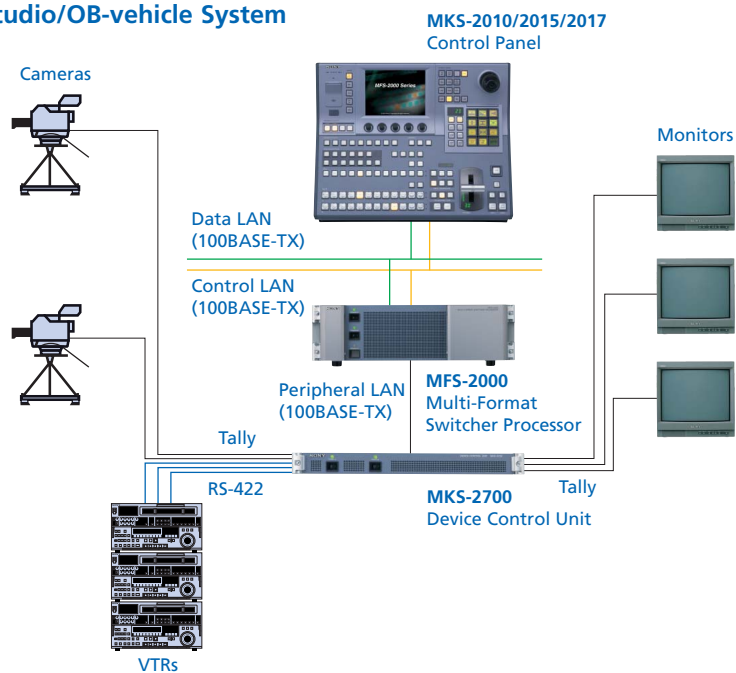
- 1 M/E configuration provides 1 M/E with 2 keys and 2 DSKs
- 1.5 M/E configuration provides 1 M/E with 2 keys and P/P transition with 2 DSKs

Each keyer offers linear key, luminance key, chroma key, and pattern key with edge and mask functions. Key edges can be added without key-drop using a dedicated frame memory.

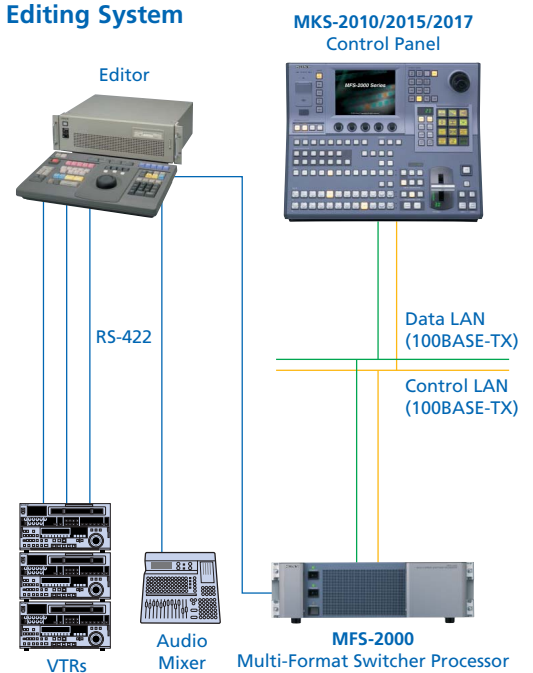
Full featured M/E wipes including advanced wipe patterns, and support for Snapshot and Macros

Provides both M/E and Effect Snapshot memories. With the advanced Macro function, complex key sequences can be learned, edited, and attached for recall to many control-panel buttons. External devices including VTRs can be controlled directly from the MFS-2000 switcher system using the MKS-2700 Device Control Unit.

## Studio/OB-vehicle System



## Editing System



Rear panel of the MKS-2010 (1 M/E Control Panel)



Rear panel of the MFS-2000 Multi-Format Switcher Processor

## User-friendly Operation

### Useful preset effect patterns

The MFS-2000 Series gives users stunning preset effect patterns, without the need for complicated programming, in the form of preset wipes and DME wipe patterns. Plus, it is equipped with various effect modifiers that enable flexible pattern adjustments to be performed and memorized on the control surface. These useful presets allow impressive visuals to be created extremely quickly and easily.

### FlexiPad™ control panel with color LCD buttons

The unique FlexiPad control panel enables operations such as Macro, M/E, and Effect Snapshot to be stored and recalled with the touch of a button. The use of color LCD buttons to indicate assigned functions gives users extremely intuitive operation.

### Easy-to-use color touch-screen LCD panel

The color touch-screen LCD panel provides users with effective and straightforward menu control. A variety of operational parameters are displayed, which can be adjusted directly from the panel.

## Benefits in Live Operations

The MFS-2000 Series also provides ideal capabilities for live operation.

### Tally operation

The switcher processor provides both serial and parallel tally outputs. A single serial port and up to 16 parallel tally ports are provided as standard. In addition, 36 programmable tally ports can be gained by adding the optional MKS-2700 Device Control Unit.

### Redundant power supply

Both the control panel and the switcher processor can be fitted with redundant power supply units, giving operators the security required for live productions.

### Low power consumption

Power consumption is less than 500 W for a 1.5 M/E-configured processor with the plug-in DME installed.

## Multiple peripheral interfaces

Equipped with various peripheral interfaces, the MFS-2000 Series operates as a powerful live production tool.

Through the 8 input /8 output GPI connector, many internal machine functions, including operating format, can be switched remotely. An additional GPI port is provided on the control panel, and an S-BUS interface is also provided to which an MKS-8080/8082 AUX bus remote panel can be connected.

## Options

State-of-the-art integrated 2-channel DME for excellent effects (optional MKS-2470 board is required)

The optional 2-channel DME provides the following stunning effects:

2D/3D linear and nonlinear transforms, Digital SPARKLE™, LIGHTING, SHADOW, TRAIL, Digital SKETCH™, GLOW, and METAL.

Powerful 6-channel frame memory with animation capability (optional MKS-2440 board is required)  
The frame memory of the MFS-2000 Series offers two channel-source busses and six channel outputs with re-position capability. The frame memory stores 435 frames of HD images which translates into approximately 15 seconds at 1080/59.94i, or 2184 frames of SD images which translates into approximately 73 seconds at 480i/59.94.

Full-function 2-channel color correction (optional MKS-2440 and MKS-2420M boards are required)  
Provides primary color correction for the red, green, and blue signals. Secondary color correction is also available.



DOOR



PAGE TURN



Digital SKETCH

# KEY FEATURES FOR VERSATIL SYSTEMS

## Compact Control Panels and Switcher Processor

Three types of control panels are available, each one designed to meet the requirements of space-limited applications. Together with a 3RU switcher processor chassis, this makes the MFS-2000 an ideal choice in any situation where space is at a premium.

- 1 M/E Control Panel, 19-inch rack width with 12-crosspoint buttons
- 1.5 M/E Control Panel, 19-inch rack width with 12-crosspoint buttons
- 1.5 M/E Wide Control Panel, 576-mm width with 20-crosspoint buttons
- Switcher processor I/Os: 8 input/4 output or 16 input/8 output



MKS-2015 (1.5 M/E Control Panel)



MKS-2017 (1.5 M/E Wide Control Panel)



MKS-2010 (1 M/E Control Panel)

# SPECIFICATIONS

General	
Power requirement	AC 100 V to 240 V $\pm$ 10% 50/60 Hz
Power consumption	
MFS-2000	4.5 to 2.1 A (fully loaded)
MKS-2010/2015	1.0 to 0.5 A
MKS-2017	1.0 to 0.6 A
MKS-2700	0.7 to 0.5 A
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Operation humidity	10% to 90% RH
Dimensions (W x H x D)	
MFS-2000	440 x 132.4 x 520 mm (17 3/8 x 5 1/4 x 20 1/2 inches)
MKS-2010	440 x 167.5 x 353.9 mm (17 3/8 x 6 5/8 x 14 inches)
MKS-2015	440 x 167.5 x 448.1 mm (17 3/8 x 6 5/8 x 17 3/4 inches)
MKS-2017	576 x 167.5 x 448.1 mm (22 3/4 x 6 5/8 x 17 3/4 inches)
MKS-2700	440 x 43.6 x 520 mm (17 3/8 x 1 3/4 x 20 1/2 inches)
Mass	
MFS-2000	22 kg (48 lb 8 oz, fully loaded)
MKS-2010	10.3 kg (22 lb 11 oz)
MKS-2015	11.3 kg (24 lb 15 oz)
MKS-2017	12.6 kg (27 lb 12 oz)
MKS-2700	9.8 kg (21 lb 10 oz)

Input/output connectors	
MFS-2000	
Primary inputs	Max. 16, BNC type x 1 each SMPTE292M (HDTV), SMPTE259-C (SDTV)
SDI video outputs	Max. 8, BNC type x 2 each SMPTE292M (HDTV), SMPTE259-C (SDTV)
Reference inputs	BNC type x 2, 75 $\Omega$ with loop-through HDTV system: HD tri-level sync, Analog black burst, or analog sync SDTV system: Analog black burst or analog sync
Reference output	BNC type x 1, 75 $\Omega$ HDTV system: HD tri-level sync SDTV system: Analog sync
MKS-2010/2015/2017	
Reference inputs	BNC type x 2, 75 $\Omega$ with loop-through HDTV system: HD tri-level sync, Analog black burst, or analog sync SDTV system: Analog black burst or analog sync
Ext display output	Mini D-sub 15-pin x 1, Analog RGB interface

Control signals		
MFS-2000		
Switcher interface		
Control LAN		RJ-45 x 1, 100BASE-TX
Data LAN		RJ-45 x 1, 100BASE-TX
DME interface		
Control LAN		RJ-45 x 1, 100BASE-TX
Data LAN		RJ-45 x 1, 100BASE-TX
GPI		D-sub 25-pin (female) x 1, TTL level inputs x 8, Relay contact outputs x 4, Open collector outputs x 4
Tally		D-sub 25-pin (female) x 1, Relay contact outputs x 4, Open collector outputs x 4
Serial tally		D-sub 9-pin (female) x 1, RS-422A
MKS-2010/2015/2017		
Control LAN		RJ-45 x 1, 100BASE-TX
Data LAN		RJ-45 x 1, 100BASE-TX
Peripheral LAN		RJ-45 x 1, 100BASE-TX
Device		USB type A x 1, compliance with USB 1.1
Remote		BNC type x 1, S-BUS
GPI		D-sub 25-pin (female) x 1, TTL level inputs x 8, Relay contact outputs x 4, Open collector outputs x 4
MKS-2440		
Image file LAN		RJ-45 x 1, 100BASE-TX
Device		IEEE1394 6-pin x 1
MKS-2700		
Preipheral LAN		RJ-45 x 1, 100BASE-TX
TALLY/GPI inputs		D-sub 37-pin x 1, TTL level inputs x 34
TALLY/GPI outputs		D-sub 37-pin x 2, TTL level inputs x 18 each
REMOTE		D-sub 9-pin x 6, RS-422A, various protocols

## SYSTEM COMPONENTS

<b>MFS-2000</b>	Multi-Format Switcher Processor
<b>HK-PSU02</b>	Power Supply Unit for MFS-2000
<b>MKS-2110M</b>	Input/Output Connector Board
<b>MKS-2420M</b>	Color Corrector Board
<b>MKS-2440</b>	Frame Memory Board Set
<b>MKS-2470</b>	DME Board Set
<b>MKS-2700</b>	Device Control Unit
<b>HK-PSU01</b>	Power Supply Unit for MKS-2700
<b>BZS-2000M</b>	Switcher Upgrade Software from SD to Multi Format
<b>BZS-2440M</b>	Frame Memory Upgrade Software from SD to Multi Format
<b>BZS-2470M</b>	DME Upgrade Software from SD to Multi Format
<b>MKS-2010</b>	1 M/E Control Panel
<b>MKS-2015</b>	1.5 M/E Control Panel
<b>MKS-2017</b>	1.5 M/E Wide Control Panel
<b>HK-PSU11</b>	Power Supply Unit for Control Panel

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