DFS-900M
Multi-format Switcher

3D world
Created by Sony

Compact HD/SD Switcher with 24 Inputs*, 12 Outputs*, 2-channel Multi-Viewer, and a Variety of Powerful Functionalities Including Stereoscopic 3D Support

BKDF-902 (1.5 M/E Control Panel)

Sony is proud to introduce a wide range of new features and accessories for its latest and highly sophisticated compact video switcher, the DFS-900M.

This multi-format switcher meets many different application needs in a broad operational context including local broadcast, small production, house-of-worship production, the educational sector, and government activities.

With a variety of powerful functionalities packed in a compact 3RU-size processor chassis, the versatile DFS-900M offers a multi-format capability to operate in SD, HD, or mixed SD/HD-format environments including stereoscopic 3D video.

For more flexibility, there are two types of control panels: the 1 M/E and 1.5 M/E. Both provide excellent performance.

In addition, users can configure the exact system they require by selecting from an extensive range of optional boards and accessories.

With its ideal combination of small size and huge versatility, the DFS-900M is a high-performance yet affordable compact live production switcher.

* Optional input and output boards are required.

Key Features

Multi-format Capability & Stereoscopic 3D Support

The DFS-900M is a sophisticated switcher system available in SD or HD format configurations. The resolutions and frame rates for each configuration are listed below. This flexibility allows users to choose a switcher that meets their budgetary and operational needs now and in the future.

In addition, the DFS-900M can handle SD and HD signals simultaneously, thanks to the format-converting function of its optional input and output boards. This gives users even greater operational flexibility.

HD configuration:	SD configuration:
1080i/59.94, 1080i/50	480i/59.94
720p/59.94, 720p/50	576i/50

Furthermore, it's easy to activate Stereoscopic 3D System mode. With impressive high performance, together with versatile and user-friendly operability, the DFS-900M is ideal for creating 3D content in a cost-effective way.

Flexible Input/Output Configurations

The DFS-900M is equipped with eight inputs and four outputs for HD-SDI or SD-SDI. For additional versatility, the number of inputs can be increased to 24 by adding an optional BKDF-910 Input Board. And the number of outputs can be increased to 12 by adding an optional BKDF-960 Output Board. Each board is equipped with a two-channel format converter.

What's more, the switcher can accept asynchronous input signals due to a built-in frame synchronizer.

Powerful Functionality Including 3D DME and 4-channel Frame Memory

The DFS-900M is equipped with six keyers (four keyers and two DSKs), a wide range of switcher effects, and six-channel 3D digital effects[*1] including DME wipe, non-linear effects, and warp.

More than 100 wipe patterns are available, including a wide range of adjustable parameters for these effects.

The DFS-900M is also equipped with a four-channel frame memory with a built-in storage capacity of 100 still frames, allowing sources from inputs to be captured as still images that can be handled as primary input. Still images can also be downloaded from USB memory as JPEG, BMP or TGA files. When a TGA file with an alpha channel is used, superb picture quality can be achieved with a <V+K pair> frame memory.
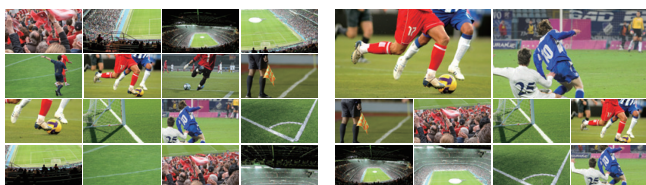
Added to this, cool effects (such as the Clip Transition effect) which are also available on switchers in the MVS Series are now also available for the DFS-900M via a GPI external device control function. [*2]

*1 Two-channel 3D DME effects as standard.
*2 Requires an external clip server.

Optional Multi-viewing Function

The optional BKDF-950 Multi Viewer Board provides a multi-viewing function that splits the screen into four, 10, or 16 windows to display multiple images. In fact, up to 32 windows can be monitored simultaneously on two screens. This function allows users to view everything together on the same monitor – input video, program output video, and preview video. On-air tally and next tally can be displayed when preview and program outputs are selected for multi-viewing. Each display window can also indicate the source name (in alphanumeric characters).

Touch-screen Menu

Menu settings can be easily accessed via the touch-screen menu when a third-party monitor is connected to the control panel. Menu operation can also be controlled by USB mouse for greater convenience. The crosspoint of AUX output channels can also be controlled by menu operation.

Compact and Straightforward Control Panels

Two types of compact and easy-to-use control panel are available, each one designed to meet the requirements of space-limited applications. Together with the 3RU processor chassis, this makes the DFS-900M an ideal choice in any situation where space is at a premium. The BKDF-902 1.5 M/E Control Panel has a built-in redundant power supply as a standard feature, as well as AUX output control keys.

BKDF-901 1 M/E Control Panel   BKDF-902 1.5 M/E Control Panel

Variety of Optional Accessories

A wide range of user-friendly optional accessories are available as listed below. Up to four input boards and two output boards can be installed in the DFS-900M processor. In addition, up to two multi-viewer boards and up to two two-channel DME boards can be installed. All of these optional accessories give users excellent versatility and highly flexible operation.

- BKDF-910 HD/SD SDI Input Board (Four inputs with Two-channel Up-converter)
- BKDF-911 Two-channel SD Analog Input Board with Frame Synchronizer and Up-converter (2 composite-in or 1 composite-in/1 component-in)
- BKDF-961 Two-channel SD Analog Output Board with Down-converter (2 composite-out or 1 composite-out/1 component-out)
- BKDF-912 Two-channel DVI-I Input Board with Frame Synchronizer and Format Converter (digital RGB or analog RGB)
- BKDF-962 Two-channel DVI-I Output Board with Frame Synchronizer and Format Converter (digital RBG or analog RGB)
- BKDF-960 HD/SD SDI Output Board (Four outputs with Two-channel Down-converter)
- BKDF-950 Multi-viewer Board (4/10/16 Split Pictures)
- BKDF-940 Two-channel DME Board
- BKDF-990 Redundant Power Supply Unit (for DFS-900M)
- Tyco Electronic 1515L 15-inch LCD Touch Monitor with AccuTouch technology

The rear panel of the DFS-900M with a full installation of optional boards

Specifications

DFS-900M Processor Unit

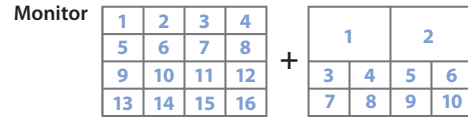| General	
Power requirements	100 to 240 V AC, 50/60 Hz
Power consumption	400 W (when the maximum number of optional boards are installed)
Operating temperature	41ºF to 104ºF (5ºC to 40ºC)
Dimensions (W/H/D)	17 3/8 × 5 1/4 × 17 5/8 inches (440 × 132 × 445 mm)
Weight	38 lb 2 oz (17.3 kg) (not including any optional product)
Signal processing	
Television system	1080/59.94i, 1080/50i, 720/50p, 720/59.94p, 480/59.94i, 576/50i
Signal processing system	4:2:2:4 digital component
Quantization bits	Y: 10 bits, C: 10 bits, KEY: 10 bits
Input/output delay	1 H (when the frame synchronizer is OFF)
Inputs/Outputs	
Video input	BNC (x8), 800 mVp-p, 75 Ω
	HD-SDI: 1.485 Gbps or 1.485/1.001 Gbps
	SD-SDI: 270 Mbps
	The frame synchronizer function is built in for all the inputs.
Reference input	BNC (x2), 75, loop-through (An external 75-ohm terminator is required.)
	BB: NTSC 0.429 Vp-p, PAL 0.45 Vp-p (Tri-level sync: ±0.3 Vp-p is available for HD mode.)
Video output*	BNC (x4), 800 mVp-p, 75 Ω
	HD-SDI: 1.485 Gbps or 1.485/1.001 Gbps
	SD-SDI: 270 Mbps
Reference output	BNC (x1), 75 Ω
	BB: NTSC 0.429 Vp-p, PAL 0.45 Vp-p (Tri-level sync: ±0.3 Vp-p is available for HD mode.)
Interfaces	
REMOTE	D-sub 9-pin (x3), female
EDITOR	D-sub 9-pin, female
GPI IN	D-sub 25-pin, female, 16 inputs
TALLY/GPI OUT	D-sub 37-pin, female, 32 outputs
PANEL	RJ-45 type
Supplied accessories	
	Control cable (shielded cross cable complied with IEEE 802.3 Ethernet 100BASE-TX standards, for connection between the Processor Unit and Control Panel) (1)
	Operating Instructions (1)
	Warranty (1)

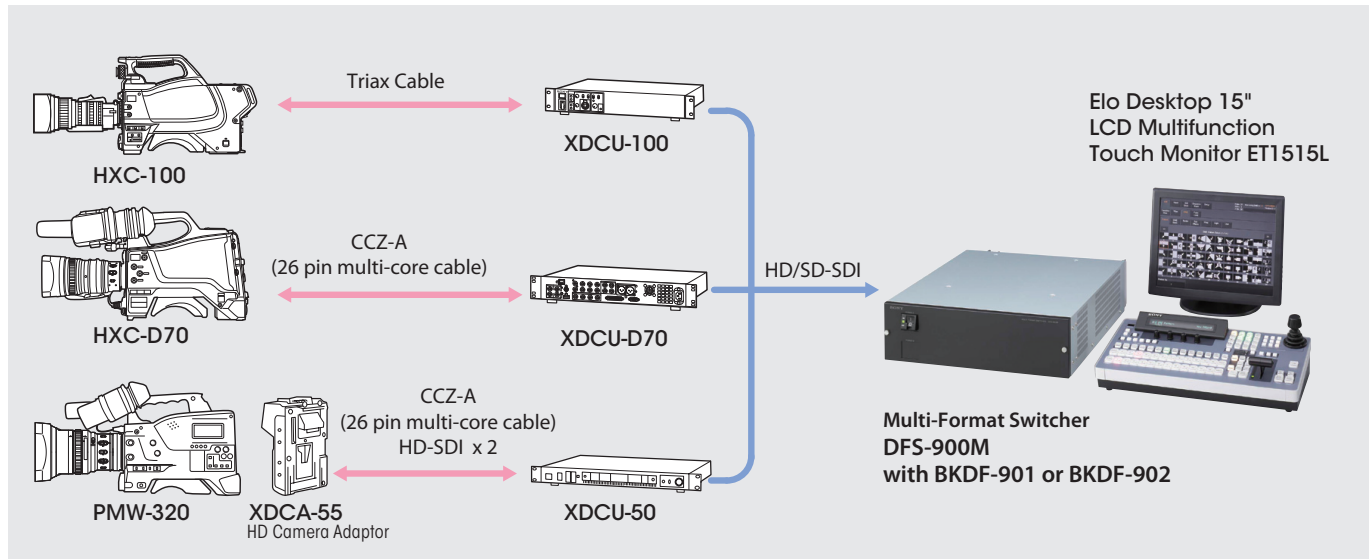* SDI Embedded Audio can be bypassed

BKDF-901 1M/E Control Panel

General	
Power requirements	100 to 240 V AC, 50/60 Hz
Power consumption	28 W
Operating temperature	41ºF to 104ºF (5ºC to 40ºC)
Dimensions (W/H/D)	17 × 4 3/8 × 8 3/4 inches (430 × 110.1 × 221 mm)
Weight	9 lb 11 oz (4.4 kg)
Interface - Operating panel	
USB MEMORY	High Speed USB (USB2.0) Type-A
Interface - Rear panel	
EXT DISPLAY	High Density D-sub 15-pin, female
DEVICE	High Speed USB (USB2.0) Type-A
PROCESSOR	RJ-45

BKDF-902 1.5M/E Control Panel

General	
Power requirements	100 to 240 V AC, 50/60 Hz
Power consumption	68W
Operating temperature	41ºF to 104ºF (5ºC to 40ºC)
Dimensions (W/H/D)	23 5/8 × 4 7/8 × 15 3/4 inches (599 × 120.8 × 399 mm)
Weight	22 lb 15 oz (10.4kg)
Interface - Operating panel	
USB MEMORY	High Speed USB (USB2.0) Type-A
Interface - Rear panel	
EXT DISPLAY	High Density D-sub 15-pin, female
DEVICE	High Speed USB (USB2.0) Type-A
PROCESSOR	RJ-45

Monitor

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

+

1		2	
3	4	5	6
7	8	9	10

Sample System Diagram

Triax Cable

HXC-100 — XDCU-100

CCZ-A (26 pin multi-core cable)

HXC-D70 — XDCU-D70

CCZ-A (26 pin multi-core cable)
HD-SDI x 2

PMW-320 — XDCA-55 HD Camera Adaptor — XDCU-50

HD/SD-SDI

Elo Desktop 15" LCD Multifunction Touch Monitor ET1515L

Multi-Format Switcher DFS-900M with BKDF-901 or BKDF-902