

SONY®

Digital Audio Mixer
DMX-E3000



Affordable, Second Generation 16 into 4 Channel Digital Audio Mixer for Digital VTR Based Post Production Systems

Interfaced with up to eight digital VTRs and under remote control from a Sony BVE-9100 system or other video editor, the DMX-E3000 provides complete digital audio-follow-video editing facilities. Four, video styled, program/preset buses, crossfade facility, integral input routing switcher and snapshot memory of control panel settings are just some of the features it offers to the total digital post production process. Its 19-inch, rack mountable, compact control surface makes this mixer ideal for video edit suites where space is at a premium.

With its outstanding operational flexibility, cost saving features and superb audio quality, it confirms the long term Sony commitment to all-digital post production.

Control Panel (with DMBK-3000 optional)



Inputs/Outputs

32 Input Capability

32 inputs, via 16 input ports conforming to the AES/EBU digital format, allow connection of up to eight D-1, D-2 digital VTRs or Digital BETACAM™ VTRs or professional digital audio equipment, such as PCM-7050/7030 Sony professional DAT recorders.

Built-in 32 x 16 AES/EBU Routing Switcher

A 32 x 16 input digital audio matrix is incorporated. This input routing matrix can interface with the four audio tracks of up to eight digital VTRs with their outputs assignable in pairs to any of the 16 channels.

32 Channels Control Mode

The DMX-E3000 control panel can page between front and rear settings, allowing set up of all 32 channels inputs. 16 of the 32 inputs channels can be active at one time.

4CH PROGRAM Outputs

16 AES/SBU output connectors provide a total of eight sets of the four PGM (program) buffered outputs, each connector carrying two of these digital audio outputs. This enables the DMX-E3000 to supply PGM outputs for up to eight digital VTRs. This output configuration supports 'free

recorder assignment' as external distribution amplifiers are not required to provide VTR record feeds.

Flexible Preview CH 1 to CH 4 Preview Buses

The pre-fader points of all 16 input channels can be assigned to PREVIEW buses 1–4 to monitor edit rehearsals. Each of the four PGM outputs can also be mixed onto its associated PREVIEW bus.

4 CH Analog and Digital PREVIEW Outputs

In addition to its four digital PREVIEW outputs, the DMX-E3000 has four duplicate analog PREVIEW outputs for direct connection to a monitoring system. These analog PREVIEW outputs are fed via 20-bit high quality D/A converters to provide superb quality audio monitoring.

Stereo Digital Insertion

An AES/EBU DI/O is provided as a post EQ/pre-fader stereo insertion point that can be selected to any of the 16 channels of the DMX-E3000. This permits the direct connection of an external digital effects unit.

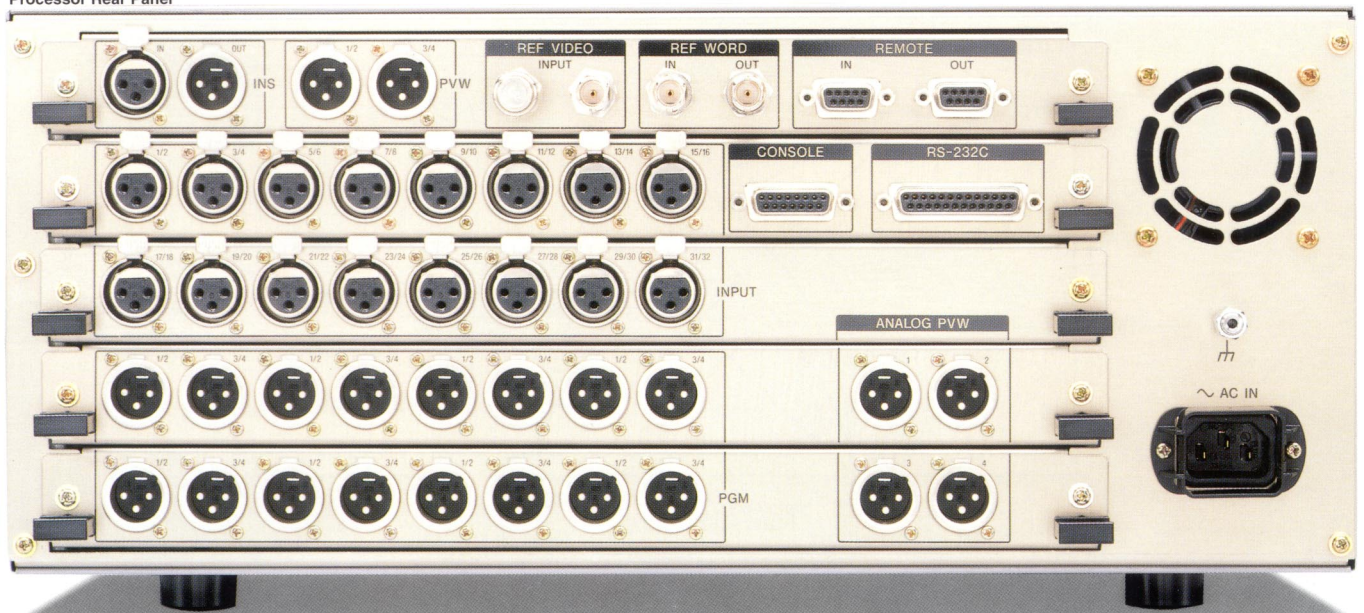
Monitor Mix Matrix

Each of the four PGM buses is fed to a 4 x 2 monitor mix matrix. Any PGM bus can be selected to the PVW outputs 1 and 2 for monitoring. PGM bus outputs 3 and 4 permanently feed PVW outputs 3 and 4.

Each of the four digital PVW monitoring outputs has a duplicate analog output. These are derived from superb 20-bit D/A converters for the direct connection of a high quality manual system.



Processor Rear Panel



Convenient Functions for Editing

Versatile Remote Control Facility

The DMX-E3000 has both serial and parallel remote control interface connectors. The integral D-sub 9-pin serial remote interface conforms to the Sony Serial and ESAM II Extended protocols. The parallel remote interface allows external remote control of transition start, snapshot recall, PGM/PST fader level control and monitor control functions. Via these connectors, a variety of external control equipment can be connected to the DMX-E3000 for enhanced remote control.

Flexible Crossfade (Transitions)

The DMX-E3000 has four output channels, each of which has an associated program (PGM) and preset (PST) bus-for a total of eight buses. Transitions between each of the two buses feeding an output channel can be initiated in any one of three ways:

- (1) Manual control, using the PGM/PST transition faders. With the 'fader learn' function, up to three transition fader movements can be stored in transition setup registers.

- (2) Editor control, for audio-follow-video crossfades under control of the editor system.
- (3) Auto control, when the fade-in and fade-out durations and offset time can be memorized in one of three transition setup registers. These settings can then be recalled using the DMX-E3000 control panel. The transition curve for auto control can be selected as either -3 dB, -6 dB or -20 dB.

Fader Learn Function

The DMX-E3000's 'fader learn' function allows the PGM/PST transition fader movements to be memorized in one of three registers.

Four Manual Master Faders for PGM Outputs

Four manual master faders allow fine adjustment of each program output level at the final mixing stage.

Fader Depth Control

The fader depth control for fade-out and voice over edits can be set on each channel.

Channel Link Operation

Simultaneous fader control of a group of several adjacent channels can be provided by selecting their LINK buttons.

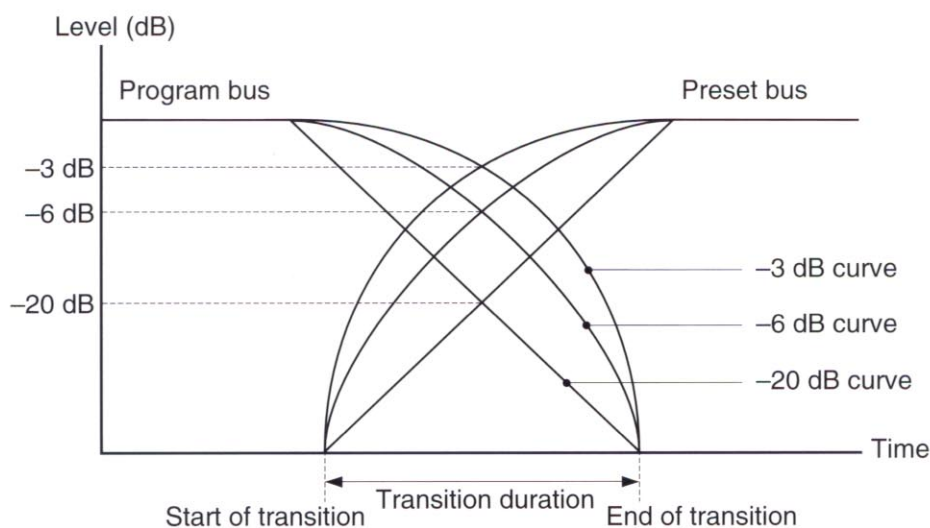
Level control of all these selected channels is then by the left hand fader of the selected group.

As an example, the four outputs of a DVTR, assigned to channels 5 to 8, can be linked and controlled by the channel 5 fader.

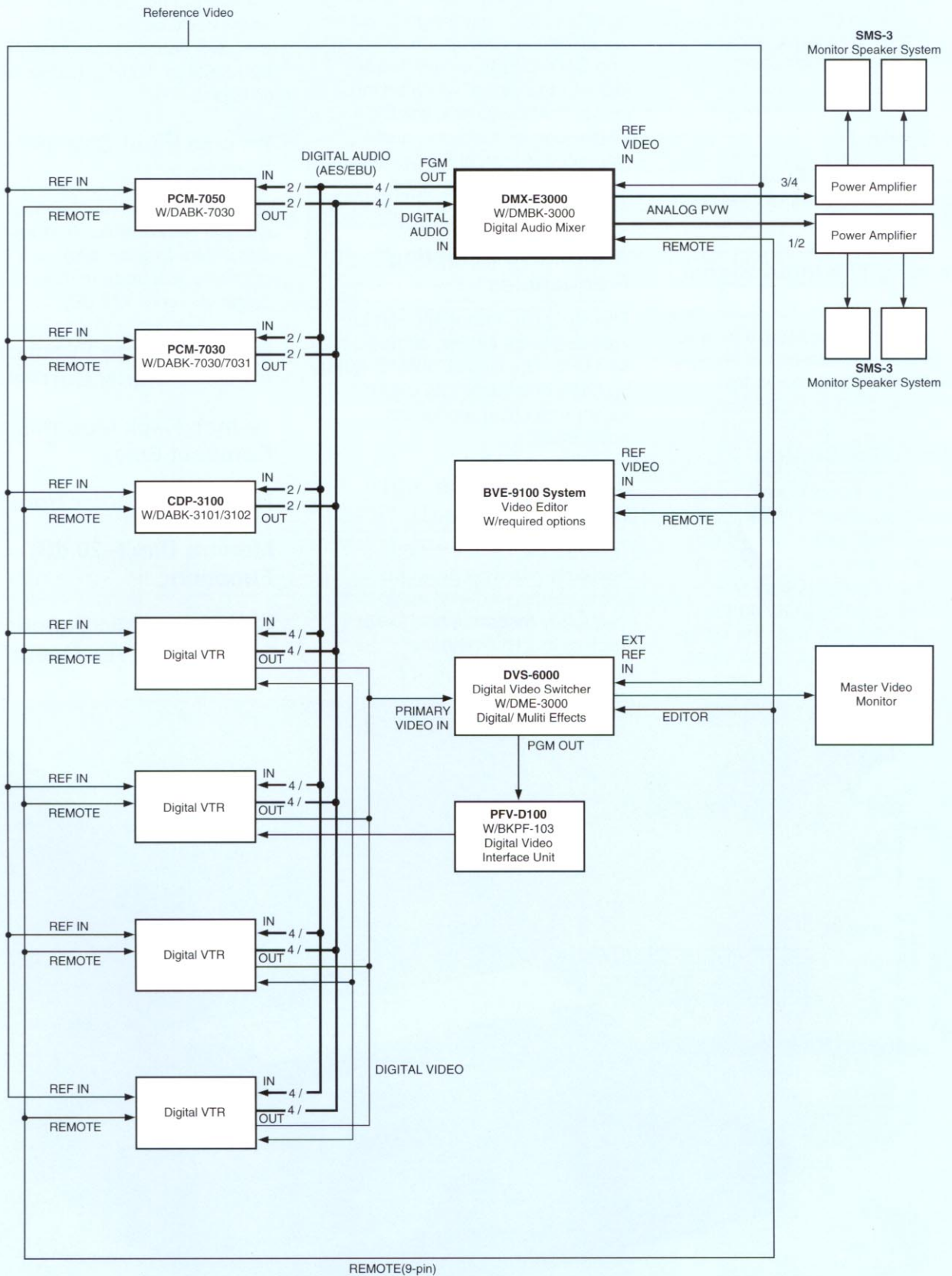
Up to 99 Snapshot Memories

Up to 99 snapshots, each containing a set of control panel static settings, can be stored in the internal RAM for fast random access. Each snapshot memorizes input fader positions, program bus assign switch settings, crossfade time for each crossfader, audio delay offset time setting, EQ and filtering setups and routing switcher settings. The data of these settings can be uploaded and downloaded by both Sony serial and ESAM II extended protocol.

Transition curve



System Diagram



Superior Audio Control

Internal MS (Middle-Side) decoder

The internal MS decoder can be used to decode MS signals into A/B signals. The decoded A/B signals can be assigned to PGM/PST buses 1-3 and 2-4.

Pan Control

Input channel panning can be adjusted between output channels 1 & 2, and 3 & 4.

Trimming The Input Signal Level

The trim control is effective for each input channel. It can adjust an input signal level within a range from -18 dB to +18 dB in 1 dB steps.

Audio Delay Control

To match the signal delay in video switchers and effects units, individual audio offset delays can be adjusted easily and quickly for each input channel. Delay times can be adjusted by entering the required offset time over the range 0 to 9.9 frames in 0.1 frame steps.

Signal Processing Locked to a Video/Audio Reference

Signal processing can be locked to an NTSC/PAL video signal, either composite or black burst. The DMX-E3000 automatically locks to this signal when an input is present. Alternatively, the DMX-E3000 can be locked to audio reference signal, either word sync or selected from one of the AES/EBU digital inputs.

Alternative Sampling Frequencies

The sampling frequency can be selected to be 48kHz, 47.952kHz or 44.1kHz. The DMX-E3000 can thus be used in virtually any digital video/audio post production application.

3-Band Equalizer and Filters

The optional DMBK-3000 equalizer/filter unit provides comprehensive digital audio frequency response control for each of the 16 channels.

The DMBK-3000 offers a 3-band shelving and peaking type equalizer along with low and high cut filters. The low cut filter can additionally be switched to a notch filter, will notch frequencies of 50Hz, 60Hz, 100Hz, 120Hz, 150Hz or 180Hz.

Precise Input Channel Faders

The DMX-E3000 has 16 input channel faders which feature 100 mm stroke to allow accurate adjustment of input level over a range of $-\infty$ to +12 dB.

Phase Reverse Function for Easy Signal Correction

19-inch Rack Mountable Compact Sizes

Removable Meter Housing

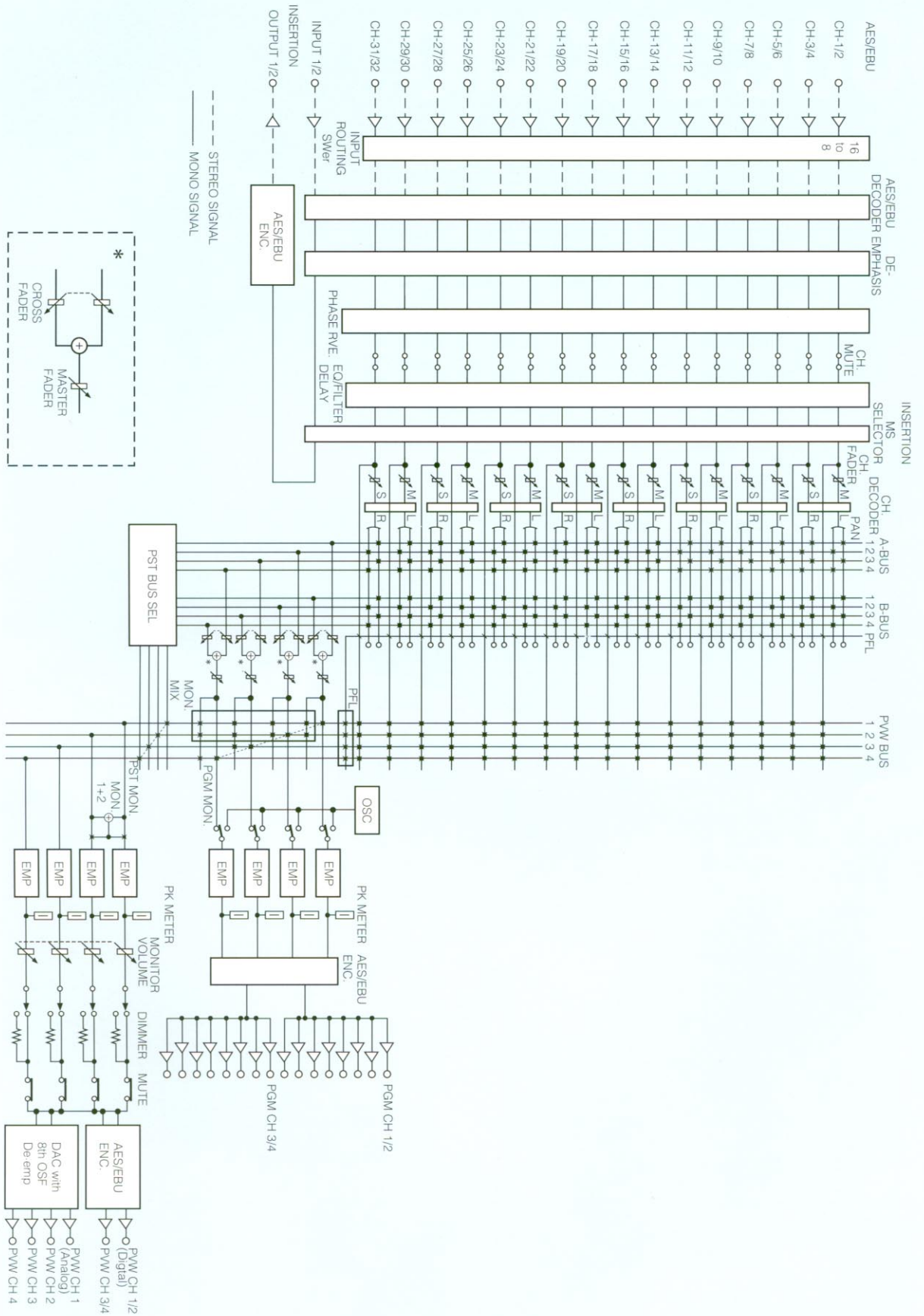
Monitor Dim (-20 dB) Function

Self-Diagnostic Function for Trouble Free Operation



DMX-E3000 (with DMBK-3000 optional)

Signal Flow Diagram



Specifications

Inputs

Digital Audio	
No. of channels:	32 channels (XLR-3-31 type x 16)
Format:	AES/EBU (2 channels)
Insertion	
No. of channels:	2 channels (XLR-3-31 type x 1)
Format:	AES/EBU (2 channels)
Video Sync	
No. of channels:	1 channel (BNC type)
Video signal:	NTSC color (29.97Hz), PAL color (25Hz) Black and white (30Hz)
Sync signal:	Composite sync, black burst or composite video
Termination:	75 Ω
AES/EBU Sync	One digital input signal, selected with an internal switch, is used as this reference audio signal.
Word Sync	
No. of channels:	1 channel (BNC type)
Sampling frequency:	48.0/47.952/44.1kHz

Outputs

Program	
No. of channels:	8 x 4 channels (XLR-3-32 type 16)
Format:	AES/EBU (2 channels)
Preview (Digital)	
No. of channels:	4 channels (XLR-3-32 type x 2)
Format:	AES/EBU (2 channels)
Preview (Analog)	
No. of channels:	4 channels (XLR-3-32 type x 4)
Reference level:	+4dBu
Max. level:	+24dBu
Impedance:	600 Ω, balanced at 1kHz
Insertion	
No. of channels:	2 channels (XLR-3-32 type x 1)
Format:	AES/EBU (2 channels)
Video Sync	
No. of channels:	1 channel (BNC type, x 2, loop-through)
Word Sync	
No. of channels:	2 channels (BNC type x 2)
Output level:	TTL (at 75 Ω termination)

REMOTE I/O

Serial REMOTE	
Connector:	D-sub 9-pin
Format:	Sony 9-pin serial, ESAM II Extended
Parallel REMOTE	
Connector:	D-sub 50-pin
RS-232C	
Connector:	D-sub 25-pin
Controller ↔ Processor	
Connector:	D-sub 15-pin
Meter ↔ Controller	
Connector:	D-sub 25-pin

Audio

Sampling Frequency:	48kHz, 47.952kHz, 44.1kHz
Frequency Response:	20Hz to 20kHz within $+0.2$ dB -0.5 dB
Total Harmonic Distortion:	Less than 0.02%
Dynamic Range:	More than 105dB
Cross Talk:	Less than -90dB

*0dBu=0.775V r.m.s.

*"Digital BETACAM" is trademark of Sony Corporation.

*Design and specifications subject to change without notice.

Equalizer (w/DMBK-3000)

High Frequency (Shelving type)	
Frequency range:	1kHz to 16kHz
Gain range:	±15dB
Q:	0.7 fixed
Mid Frequency	
Frequency range:	200kHz to 3.2kHz
Gain range:	±15dB
Q:	0.7 fixed
Low Frequency (Shelving type)	
Frequency range:	20Hz to 320Hz
Gain range:	±15dB
Q:	0.7 fixed

Filters (w/DMBK-3000)

Low Cut Filter	
Cut off frequency:	20Hz to 330Hz
Roll off characteristics:	12dB/oct
High Cut Filter	
Cut off frequency:	1kHz to 16kHz
Roll off characteristics:	12dB/pct
Notch Filter	
Notch Frequency:	50Hz, 60Hz, 100Hz, 120Hz, 150Hz or 180Hz

Built-in Oscillator

Frequency:	1kHz
Output level:	-10dB (Full Scale) to -24dB (Foll Scale), variable

Indicator (peak metering)

Level meters:	101 segment LED bargraphs
---------------	---------------------------

General

Power Requirements:	AC100/120/220/240V, 50/60Hz
Power Consumption	
Processor:	50W
Controller:	30W
Dimensions	
Processor:	424(W) x 177(H) x 450(D) mm (16 3/4 x 7 x 17 3/4 inches)
Controller:	424(w) x 119.3(H) x 398.8(D) mm (16 3/4 x 4 3/4 x 15 3/4 inches)
Meter:	424(W) x 132.4(H) x 40(D) mm (16 3/4 x 5 1/4 x 1 5/8 inches)
Weights	
Processor:	13kg (28 lb 10 oz)
Controller:	10kg (22 lb)
Meter:	1kg (2 lb 3 oz)

Supplied Accessories

AC Power Cables (x 2)
Processor-Controller Cable (30 m)
Controller-Meter Cable (3 m)
19-inch Rack Mount Kit for Controller/Meter Unit
BNC 75 Ω termination

Optional Accessory



DMBK-3000 Digital Equalizer/Filter Unit

Equipped with the DMBK-3000, the DMX-E3000 provides assignable control of equalizer along with low/high cut filters.

DMBK-3010 Remote Control Unit

Distributed by

SONY ELECTRONICS INC.
BUSINESS AND PROFESSIONAL PRODUCTS GROUP
3 PARAGON DRIVE
MONTVALE, NJ 07645