

SONY®

**Video and Audio
Interfacing Guide Book**
2002–2003



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Routing Switchers Reference Guide	2
I/F Processor Functional Index	7
I/F Processor Cross Reference Guide	8
Routing Switchers	11
Cables	39
Common Accessories	41
Interface Processor SP Series	43
Interface Processor L Series	69
Interface Processor D Series	99
HDTV	100
SDTV	117
Interface Processor Others	133
PRODUCT INDEX	143
Technical References	145
Routing Switchers	146
ISR	158
EDH	160

Routing Switcher Features

Signal type	Routing switcher type	Matrix size	Multi-level	Maximum cascadable matrix size*	Maximum S-BUS matrix size**	Control		
						S-BUS	RS-422A (CART)	Ethernet
HD SDI/SDI video	HDS-X5800	264 x 272	●	1056 x 272	1024 x 1024	●	●	●(100BASE-TX)
	HDS-X3700	128 x 128	●		1024 x 1024	●	●	●(10BASE-T)
	HDS-X3600	64 x 64	●		1024 x 1024	●	●	●(10BASE-T)
	HDS-X3400	16 x 16	●		1024 x 1024	●	●	●(10BASE-T)
	HKSP-061M	8 x 4			16 x 8	●		With HKSP-300
SDI/SDTI video***	BKPF-300	8 x 2		112 x 2		●		
Analog composite video	BVS-V3232	32 x 32			512 x 512	●		
	BKPF-301	8 x 2		32 x 2		●		
Analog audio	BVS-A3232	32 x 32			512 x 512	●		
	BKPF-351	8 x 2		32 x 2		●		
AES/EBU audio	BKPF-350	8 x 2		112 x 2		●		
Analog composite video, analog audio and AES/EBU audio	DVS-128	128 x 128	●		1024 x 1024	●	●	
RS-422A	DVS-RS1616	16 x 16	●	128 x 128	512 x 512	●		
Time code	DVS-TC3232	32 x 32	●	256 x 256	512 x 512	●		

Notes:

* An entry in the 'Maximum cascadable matrix size' column indicates that routers of this type can be cascaded to form larger matrix, up to the maximum shown. Cascade sets are required.

** Maximum S-BUS matrix size that can be controlled from the primary station.

*** SDTI is defined as SMPTE305M.

HKSP-061M installs in PFV-SP Series Signal Processing Units. BKPF-300 Series boards install in PFV-D/PFV-HD Series Signal Processing Units.

Routing Switcher Reference Guide

	Alarm output	ISR support	Backup PSU/CPU option	Board option				Rack height
				Monitor	Input	Output	Matrix	
	●		Standard		●	●	●	22
	●		Standard	Standard	●	●	●	8
	●		Standard	Standard	●	●	●	4
			Standard	Standard	●	●	●	1
		●	BKDS-RS1690					3
		●	BKDS-RS1690					3
		●	BKDS-12890	Standard	●	●	●	14
			BKDS-RS1690				●	8
			BKDS-RS1690				●	8

Routing Switcher Options

Routing switcher type	Cascade set	Backup CPU boards	Backup Power Supply Units	Monitoring output	Input	
HDS-X5800		Standard	Standard	Standard	HKDS-5810M(HD/SD) HKDS-5810SD(SD)	
HDS-X3700		Standard	Standard	Standard	HKDS-X3014(HD/SD) HKDS-X3011(SD)	
HDS-X3600		Standard	Standard	Standard		
HDS-X3400				Standard		
HKSP-061M						
BKPF-300						
BVS-V3232		BKDS-RS1690	BKDS-PV3291			
BKPF-301						
BVS-A3232		BKDS-RS1690	BKDS-PV3291			
BKPF-351						
BKPF-350						
DVS-128		Standard	Standard		BKDS-AV10(Analog video) BKDS-AA10(Analog audio)	
DVS-RS1616	BKDS-RS1620	BKDS-RS1690	BKDS-RS1691			
DVS-TC3232	BKDS-RS1620	BKDS-RS1690	BKDS-RS1691			
HKSP-R80		HKSP-R81				
BKPF-R70A		BKPF-R70A				

Routing Switcher Reference Guide

	Distribution	Output	Input expansion	Matrix
	HKS-5820M(HD/SD)	HKS-5860M(HD/SD) HKS-5860SD(SD)	HKS-5811M(HD/SD) HKS-5811SD(SD)	HKS-5830M(HD/SD) HKS-5830SD(SD)
	HDS-X3010(HD/SD)	HKDS-X3064(HD/SD) HKDS-X3051(SD)		HKDS-X3060(HD/SD) HKDS-X3050(SD)
				Standard
		BKDS-AV11(Analog video) BKDS-AA11(Analog audio)		

Backup CPU boards

Each type of backup CPU board is identical to the main CPU board it supports. If the main CPU fails, the backup CPU automatically takes over all control functions and the router continues to function normally.

HDS-X5800/X3700/X3600 video routing switchers incorporate a redundant CPU board as standard. The HKSP-R80 routing switcher controller offers sophisticated primary station functionality, and system redundancy with the HKSP-R81 backup CPU, to any routing switcher system. The HDS-X5800/X3700/X3600 or HKSP-R80 provide full system management of all up-loading and down-loading of configuration files from a PC running BZR-2000 routing switcher control software via a 10/100Base-T Ethernet-based network.

Backup Power Supply Units

A routing switcher backup Power Supply Unit (PSU) is a valuable option in critical applications, such as on-air play out systems. It operates in parallel with the main router PSU so that, if this fails, the backup supply continues to supply DC power to the routing switcher. AC power for the backup PSU is fed through a separate connector, so that the main and backup units can be powered from different AC power sources.

I/F Processor Functional Index

	PFV-SP Series	PFV-HD Series	PFV-D Series	PFV-L Series
Mounting frame	PFV-SP3300 PFV-SP3100	PFV-HD300A PFV-HD50A	PFV-D300 PFV-D50A PFV-D10	PFV-L10
Backup power supply	HK-PSU03 HK-PSU01	BKPF-PS300 BKPF-PS50A	BKPF-PS300 BKPF-PS50A	BKPS-LPS10
SDI distribution amplifier	HKPF-SP003	HKPF-103M		BKPF-L603 BKPF-L611 BKPF-L612
SDI monitoring distribution amplifier				BKPF-L613C
Video A to D converter		HKPF-101		BKPF-L601C
Video D to A converter		HKPF-102		BKPF-L602C
Audio/video multiplexer	HKSP-105	HKPF-105M	BKPF-205	BKPF-L605
Audio/video demultiplexer	HKSP-106	HKSP-106M	BKPF-206	BKPF-L606
4:2:2 to 4 fsc NTSC converter			BKPF-012A	
4 fsc to NTSC 4:2:2 converter			BKPF-021	
Digital video delay line	HKSP-008HD			
Line synchronizer	HKSP-008HD			BKPF-L608C
Frame synchronizer	HKSP-008HD			BKPF-L608C
Analog composite to 4:2:2 decoder				BKPF-L641
4:2:2 to analog composite encoder				BKPF-L632 BKPF-L642
Analog video distribution amplifier				BKPF-L703A
Video delay distribution amplifier				BKPF-L723
Black burst regenerator				BKPF-L704
AES/EBU distribution amplifier				BKPF-L653
Audio distribution amplifier				BKPF-L753A
Audio A to D converter				BKPF-L751
Audio D to A converter				BKPF-L752
Audio signal generator				BKPF-L754
HD to 525 downconverter	HKSP-525	HKPF-525V HKPF-525AV HKPF-9000		
525/625 to HD up-converter	HKSP-1125	HKPF-1125A HKPF-9000		
HDCAM encoder		HKPF-E270		
HDCAM decoder		HKPF-D270		
Digital video 8 x 2 selector	HKSP-061M		BKPF-300	
Analog video 8 x 2 selector			BKPF-301	
Digital audio 8 x 2 selector			BKPF-350	
Analog audio 8 x 1 selector			BKPF-351	
S-BUS expander/repeater				BKPF-L803
Routing switcher controller	HKSP-R80 HKSP-R81		BKPF-R70A	
Optical to electrical converter	HKPF-SP021			
Electrical to optical converter	HKSP-SP022			
HD color corrector	HKSP-313			
HD/SD multi-format converter		HKPF-9000		

I/F Processor Cross Reference Guide

		Input formats					
		NTSC/PAL	YCbCr or RGB	Component serial digital	Composite serial digital	HD serial digital	
Output formats	NTSC/PAL	BKPF-301 BKPF-L703A BKPF-L704A (NTSC output) BKPF-L723		BKPF-L613C BKPF-L632 BKPF-L642			
	YCbCr or RGB			BKPF-152C BKPF-L602C		HKPF-102	
	Component serial digital	BKPF-L641	BKPF-L601	BKPF-103 BKPF-104C BKPF-105A BKPF-106A BKPF-107C BKPF-108C BKPF-111 BKPF-112 BKPF-113 BKPF-205 BKPF-206 BKPF-300 BKPF-L603 BKPF-L605 BKPF-L606 BKPF-L608C BKPF-L611 BKPF-L612 BKPF-L613C HKPF-SP003 HKSP-061M		HKPF-525V HKPF-525AV HKSP-525	
	Composite serial digital			BKPF-012A	BKPF-205 BKPF-206 BKPF-300 BKPF-L603 BKPF-L605 BKPF-L606 BKPF-L611 BKPF-L612 HKPF-SP003 HKPF-9000 HKSP-061M	HKPF-9000	
	HD serial digital	HKPF-1125A HKSP-1125	HKPF-101	HKPF-1125A HKSP-1125	HKPF-1125A HKPF-9000	HKPF-103M HKPF-105M HKPF-106M HKPF-9000 HKPF-SP003 HKSP-008HD HKSP-061M HKSP-313	
	HD-SDTI					HKPF-E270	
	AES/EBU digital audio			BKPF-L606	BKPF-L606	HKPF-106M	
	Analog audio			BKPF-206	BKPF-206		
	S-BUS control						
	Optical (SD SDI)			HKPF-SP022	HKPF-SP022		
Optical (HD SDI)					HKPF-SP022		

I/F Processor Cross Reference Guide

	HD-SDTI	AES/EBU digital audio	Analog audio	S-BUS control	Ethernet control	Optical (SD SDI)	Optical (HD SDI)
		BKPF-L605	BKPF-205			HKPF-SP021	
		BKPF-L605	BKPF-205			HKPF-SP021	
	HKPF-D270	HKPF-105M					HKPF-SP021
	HKPF-SP003					HKPF-SP021	
		BKPF-350 BKPF-L653 BKPF-L752	BKPF-L751 BKPF-351 BKPF-L753A BKPF-L754 (output only)				
				BKPF-L803 BKPF-R70A HKSP-R80 HKSP-R81	HKSP-R80 HKSP-R81		
	HKPF-SP022						

Routing Switchers

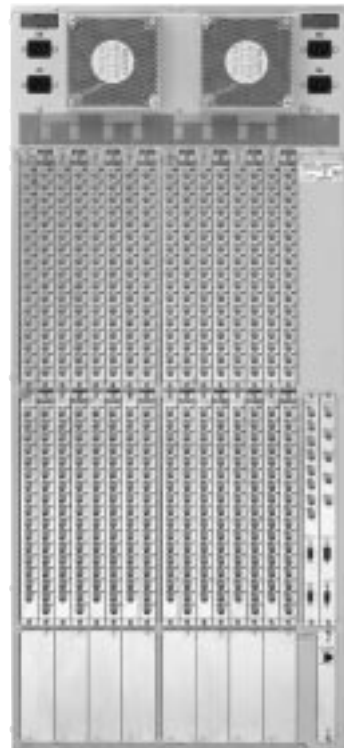
HDS-X5800	12
HDS-X3700	14
HDS-X3600	15
HDS-X3400	16
DVS-128	17
DVS-RS1616	19
DVS-TC3232	20
BVS-A3232	21
BVS-V3232	22
BKS-R1617	23
BKS-R1618	24
BKS-R3216	25
BKS-R3219	26
BKS-R3220	27
BKS-R3240A	28
BKS-R3242A	29
BKS-R3248A	30
BKS-R3280	31
BKS-R3281	32
HKSP-R80	33
BKPF-R70A	34
BKS-R5001	35
BZR-2000	36
BZR-IF310	37

HDS-X5800 Multi Bit-Rate Routing Switcher

The HDS-X5800 is a large-scale, multi format and multi bit-rate routing switcher for use in Sony S-BUS systems. The HDS-X5800 can be expanded up to a maximum matrix size of 1056 x 272. A range of I/O module handles signals from 143 Mb/s to 1.5 Gb/s. Remote maintenance and remote control routing functions are available via a 100 Base-TX network. Four reference inputs and four simultaneous S-BUS control ports are included. The four reference inputs support the co-existence of four different vertical interval switching times. Black burst or tri-level sync is available. The power consumption of a 264 x 272 HDS-X5800 is approx. 900 W including a redundant power supply unit and control board.

Features

*Highly flexible, multi bit-rate routing switcher for use in S-BUS systems *Compact size and high packing density — 264 x 272 in 22RU *Flexible input and output configurations — Increments of 33 inputs and/or 34 outputs; HD/SD input and output options; SD input and output options *Non-blocking expansion up to 1056 x 1088 *143 Mb/s to 1.5 Gb/s in the same frame *Auto cable equalization *Auto re-clocking at 143, 177, 270, 360, 540 Mb/s and 1.485 Gb/s — Re-clocks DVB-ASI signals with an optional HKS-5810M/5820M/5830M/5860M board installed *Robust and powerful Sony S-BUS control system *Quad-standard operation in a single frame — Four vertical interval switching references; Four S-BUS control ports *Ethernet-based remote control and set-up *Fully redundant internal controllers and power supplies as standard *Front loading and hot swap modules *Low power consumption (approx. 900 W)



Rear Panel

Supplied Accessories

Operation manual (1)
BZR-20 backup software (1)
BNC T-bridge connector (1)
75 Ω terminator (5)
Maintenance manual (1)
Installation manual (1)

Optional Boards

HKS-5810M HD/SD Input Board
HKS-5810SD SD Input Board
HKS-5811M HD/SD Cascade Input Board
HKS-5811SD SD Cascade Input Board
HKS-5820M HD/SD Input Distribution Board
HKS-5830M HD/SD Matrix Board
HKS-5830SD SD Matrix Board
HKS-5860M HD/SD Output Board
HKS-5860SD SD Output Board

Optional Software

BZR-2000 Routing Switcher Control Software

Optional Peripherals

BKS-R1617 Multi-Display Control Unit
BKS-R1618 Universal Control Unit
BKS-R3216 Multi-BUS Control Unit
BKS-R3219 Universal Control Unit
BKS-R3220 X-Y Control Unit
BKS-R3240A X-Y Control Unit
BKS-R3242A X-Y Control Unit
BKS-R3248A X-Y Control Unit
BKS-R3280 Single Status Display Unit
BKS-R3281 Single Status Display Unit

Specifications

Inputs/outputs

Serial digital input:

SDI IN connector (BNC type)
(up to 264 in steps of 33) 0.8 Vp-p
 $\pm 10\%$, 75 Ω

Channel coding:

Scrambled NRZI

Cable length

SD options:

200 m max. (With Belden 8281,
Fujikura 5C2V or equivalent coaxial
cable)

HD/SD options:

100 m max. (With Belden 1694A,
Fujikura 5CFB or equivalent coaxial
cable)

Input return loss

SD options:

15 dB or more (5 MHz to 360 MHz)

HD/SD options:

15 dB or more (5 MHz to 1.485 GHz)

Serial digital output:

SDI OUT connector (BNC type)
(Up to 272 in steps of 34)

Signal standard

SD options:

4:2:2 component serial digital signal
(SDI), conforming to
SMPTE259M-A/B/C/D

HD/SD options:

HD component serial digital signal
(HD SDI), conforming to SMPTE292M

Data transfer rate

SD options:

143 Mb/s to 360 Mb/s

HD/SD options:

143 Mb/s to 1.485 Gb/s

Re-clocking

SD options:

143, 177, 270, 360 Mb/s

HD/SD options:

143, 177, 270, 360, 540 Mb/s;
1.485/1.001, 1.485 Gb/s

Output return loss

SD options:

15 dB or more (5 MHz to 360 MHz)

HD/SD options:

15 dB or more (5 MHz to 1.485 GHz)

REMOTE 1

Connector:

BNC type (4)

Protocol:

Sony S-BUS

Data transfer rate:

312 kb/s (1250 kb/s will be
supported in the future)

Data transfer method:

Bi-phase Space

Cable length:

500 m max. (With Belden 8281,
Fujikura 5C2V or equivalent coaxial
cable)

REMOTE 2

Connector:

D-sub 9-pin (2), complies with
RS-422A signal standard

Protocol:

Sony Cart+

Data transfer rate:

38.4 kb/s

REMOTE 3

Connector:

D-sub 9-pin male (1), complies with
RS-232C signal standard, 38.4 Kb/s
DTR control, 8 bits, no parity, no
check, 1 stop bit

ALARM OUT:

Mini D-sub 9-pin female (4), Parallel
(relay contact outputs 6-ch)

REF IN:

BNC (4), with loop-through output,
tri-level sync or black burst signal

NETWORK:

RJ-45 (1), 100BASE-TX

General

Power requirements:

AC 100 V to 240 V, 50 to 60 Hz

Power consumption:

Approx. 900 W (fully loaded)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Operational humidity:

10 to 90% (no condensation)

Dimensions (W x H x D)

440 x 974 x 520 mm
(17 3/8 x 38 3/8 x 20 1/2 inches)
(Without projections)

Mass:

Approx. 90 kg (fully loaded) (198 lb)

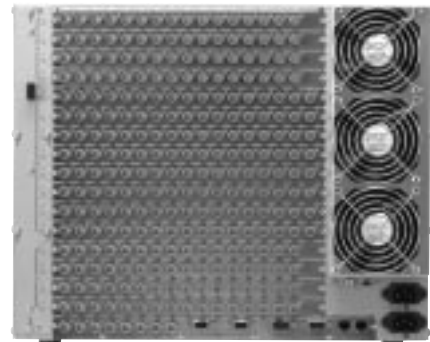
Service parts: Extension Board EX-847 (Part No.
A-8329-772-A), Maintenance Manual Part II,
Protocol Manual

HDS-X3700 Multi Bit-Rate Routing Switchers

The HDS-X3000 Series are ultra-compact multi bit-rate routers developed to support every format defined by Rec ITU-R BT605, SMPTE259M (SD), and SMPTE292M (HD) as well as 1080/24P format. A range of I/O modules handles signals from 143 Mb/s up to 1.5 Gb/s. Router control is via S-BUS and RS-422A. S-BUS is providing communications and tally management with BKS-R Series routing switcher control units, Sony MVS/DVS Series production switchers and so on. Among the many features that S-BUS supports are multi-level working, signal breakaway, phantom operation of cross-points and tie-line management. Router data is maintained in memory by a 24-hour battery backup.

Features

- * A range of highly flexible, multi bit-rate routing switchers for use in S-BUS systems
- * High density, ultra compact design
- * Up to 128 x 128 SD/HD I/O in 8U
- * 143 Mb/s to 1.5 Gb/s in the same frame, without any system alteration
- * SDI (143, 177, 270, 360 Mb/s and 540 Mb/s)
- * SDTI (270 Mb/s)
- * HD SDI (1.485 and 1.485/1.001 Gb/s)
- * Flexible input and output configurations in increments of 16 channels
- * HD SDI/SD SDI input and output options
- * Low-cost SD SDI input and output options
- * Auto cable equalization on inputs and re-clocking on outputs
- * Passes DVB-ASI signals
- * Supports SMPTE292M, which includes the proposed 1080/24P format
- * Black burst and tri-level sync reference switching in blocks of 32 outputs
- * Monitoring outputs in blocks of 32 channels
- * S-BUS and RS-422A control
- * Redundant control and power supply



Rear Panel

Supplied Accessories

- Operation manual (1)
- Installation manual (1)
- Maintenance manual (1)
- 75 Ω terminator (1)
- BNC T-bridge connector (1)
- Backup software BZR-20 (1)

Optional Accessories

- RMM-10 Rack Mount Kit

Optional Boards

- HKDS-X3010 Distribution Board
- HKDS-X3011 SD Serial Input Board
- HKDS-X3064 SD/HD Serial Output Board
- HKDS-X3060 SD/HD Matrix Board
- HKDS-X3051 SD Serial Output Board
- HKDS-X3050 SD Matrix Board
- HKDS-X3014 SD/HD Serial Input Board

Optional Software

- BZR-2000 Routing Switcher Control Software

Optional Peripherals

- BKS-R1617 Multi-Display Control Unit
- BKS-R1618 Universal Control Unit
- BKS-R3216 Multi-BUS Control Unit
- BKS-R3219 Universal Control Unit
- BKS-R3220 X-Y Control Unit
- BKS-R3240A X-Y Control Unit
- BKS-R3242A X-Y Control Unit
- BKS-R3248A X-Y Control Unit
- BKS-R3281 Single Status Display Unit
- BKS-R3280 Single Status Display Unit

Specifications

Inputs/outputs

REMOTE 1:
 S-BUS, BNC type (3)
 Data transfer rate:
 312 kb/s
 Data transfer method:
 BI-PHASE SPACE
 Transmission distance:
 500 m (with Belden 8281, Fujikura 5C2V or equivalent 75 Ω coaxial cable). Isolator/Expander
 Expandable to 1000 m with a BKPF-L803 S-BUS Isolator/Expander

REMOTE 2:
 Complies with RS-422A signal standards
 D-sub 9-pin (2)
 Data transfer rate:
 38.4 kb/s
 Protocol:
 Cart+

REMOTE 3:
 Complies with RS-232C signal standards
 D-sub 9-pin male (1)
 Terminal:
 9.6/38.4 kb/s DTR control,
 8 bits, no parity, 1 stop bit

REMOTE 4:
 S-BUS, BNC type (1) for monitoring
 Same specifications as REMOTE 1

ALARMS OUT:

- Parallel (relay) (2 connecting points)
- Mini D-sub 15-pin female

REF IN:

- Tri-level sync/Black burst:
 BNC with loop-through (2)

NETWORK:

- 10Base-T, RJ-45 (2)

General

- Power requirements:
 100 to 240 V AC, 50/60 Hz
- Power consumption:
 650 W (128 x 128, 1.5 Gb/s)
- Operational temperature:
 5 to 40 °C (41 to 104 °F)
- Operational humidity:
 10 to 90%
- Dimensions (W x H x D):
 440 x 354 x 520 mm
 (17 3/8 x 14 x 20 1/2 inches)
- Mass:
 Approx. 20 kg (44 lb 1 oz) (without modules)

Service parts: Extension Board, Maintenance Manual Part II, Protocol Manual

HDS-X3600 Multi Bit-Rate Routing Switchers

The HDS-X3000 Series are ultra-compact multi bit-rate routers developed to support every format defined by Rec ITU-R BT605, SMPTE259M (SD), and SMPTE292M (HD) as well as 1080/24P format. A range of I/O modules handles signals from 143 Mb/s up to 1.5 Gb/s. Router control is via S-BUS and RS-422A. S-BUS is providing communications and tally management with BKS-R Series routing switcher control units, Sony MVS/DVS Series production switchers and so on. Among the many features that S-BUS supports are multi-level working, signal breakaway, phantom operation of cross-points and tie-line management. Router data is maintained in memory by a 24-hour battery backup.

Features

- * A range of highly flexible, multi bit-rate routing switchers for use in S-BUS systems
- * High density, ultra compact design
- * 143 Mb/s to 1.5 Gb/s in the same frame, without any system alteration
- * SDI (143, 177, 270, 360 Mb/s and 540 Mb/s)
- * SDTI (270 Mb/s)
- * HD SDI (1.485 and 1.485/1.001 Gb/s)
- * Flexible input and output configurations in increments of 16 channels
- * HD SDI/SD SDI input and output options
- * Low-cost SD SDI input and output options
- * Auto cable equalization on inputs and re-clocking on outputs
- * Passes DVB-ASI signals
- * Supports SMPTE292M, which includes the proposed 1080/24P format
- * Black burst and tri-level sync reference switching in blocks of 32 outputs
- * Monitoring outputs in blocks of 32 channels
- * S-BUS and RS-422A control
- * Redundant control and power supply

Supplied Accessories

- Operation manual (1)
- Installation manual (1)
- Maintenance manual (1)
- 75 Ω terminator (1)
- BNC T-bridge connector (1)
- Backup software BZR-20 (1)

Optional Accessories

- RMM-10 Rack Mount Kit

Optional Boards

- HKDS-X3010 Distribution Board
- HKDS-X3011 SD Serial Input Board
- HKDS-X3064 SD/HD Serial Output Board
- HKDS-X3060 SD/HD Matrix Board
- HKDS-X3051 SD Serial Output Board
- HKDS-X3050 SD Matrix Board
- HKDS-X3014 SD/HD Serial Input Board

Optional Software

- BZR-2000 Routing Switcher Control Software

Optional Peripherals

- BKS-R1617 Multi-Display Control Unit
- BKS-R1618 Universal Control Unit
- BKS-R3216 Multi-BUS Control Unit
- BKS-R3219 Universal Control Unit
- BKS-R3220 X-Y Control Unit
- BKS-R3240A X-Y Control Unit
- BKS-R3242A X-Y Control Unit
- BKS-R3248A X-Y Control Unit
- BKS-R3281 Single Status Display Unit
- BKS-R3280 Single Status Display Unit

Specifications

Inputs/outputs

REMOTE 1:
 S-BUS, BNC type (2)
 Data transfer rate:
 312 kb/s
 Data transfer method:
 BI-PHASE SPACE
 Transmission distance:
 500 m (with Belden 8281, Fujikura 5C2V or equivalent 75 Ω coaxial cable).
 Expandable to 1000 m with a BKPF-L803 S-BUS Isolator/Expander

REMOTE 2:
 Complies with RS-422A signal standards
 D-sub 9-pin (2)
 Data transfer rate:
 38.4 kb/s
 Protocol:
 Cart+

REMOTE 3:
 Complies with RS-232C signal standards
 D-sub 9-pin male (1)
 Terminal:
 9.6/38.4 kb/s DTR control,
 8 bits, no parity, 1 stop bit

REMOTE 4:
 S-BUS, BNC type (1) for monitoring
 Same specifications as REMOTE 1

ALARM OUT:

- Parallel (relay) (2 connecting points)
- Mini D-sub 15-pin female

REF IN:

- Tri-level sync/Black burst:
 BNC with loop-through (2)

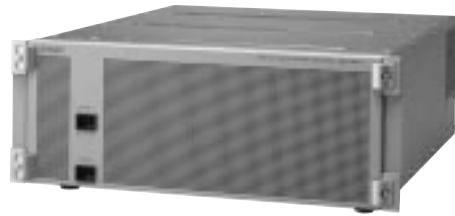
NETWORK:

- 10Base-T, RJ-45 (2)

General

- Power requirements:
 100 to 240 V AC, 50/60 Hz
- Power consumption:
 330 W (64 x 64, 1.5 Gb/s)
- Operational temperature:
 5 to 40 °C (41 to 104 °F)
- Operational humidity:
 10 to 90%
- Dimensions (W x H x D):
 440 x 176 x 520 mm
 (17 3/8 x 7 x 20 1/2 inches)
- Mass:
 Approx. 15 kg (33lb 1 oz) (without modules)

Service parts: Extension Board, Maintenance Manual Part II, Protocol Manual



Rear Panel

HDS-X3400 Multi Bit-Rate Routing Switchers

The HDS-X3000 Series are ultra-compact multi bit-rate routers developed to support every format defined by Rec ITU-R BT605, SMPTE259M (SD), and SMPTE292M (HD) as well as 1080/24P format. A range of I/O modules handles signals from 143 Mb/s up to 1.5 Gb/s. Router control is via S-BUS and RS-422A. S-BUS is providing communications and tally management with BKS-R Series routing switcher control units, Sony MVS/DVS Series production switchers and so on. Among the many features that S-BUS supports are multi-level working, signal breakaway, phantom operation of cross-points and tie-line management. Router data is maintained in memory by a 24-hour battery backup.



Rear Panel

Features

- * A range of highly flexible, multi bit-rate routing switchers for use in S-BUS systems
- * High density, ultra compact design * 143 Mb/s to 1.5 Gb/s in the same frame, without any system alteration
- * SDI (143, 177, 270, 360 Mb/s and 540 Mb/s) * SDTI (270 Mb/s) * HD SDI (1.485 and 1.485/1.001 Gb/s)
- * Flexible input and output configurations in increments of 16 channels
- * HD SDI/SD SDI input and output options
- * Low-cost SD SDI input and output options
- * Auto cable equalization on inputs and re-clocking on outputs
- * Passes DVB-ASI signals
- * Supports SMPTE292M, which includes the proposed 1080/24P format
- * Black burst and tri-level sync reference switching in blocks of 32 outputs
- * Monitoring outputs in blocks of 32 channels
- * S-BUS and RS-422A control
- * Redundant control and power supply

Supplied Accessories

- Operation manual (1)
- Installation manual (1)
- Maintenance manual (1)
- 75 Ω terminator (1)
- BNC T-bridge connector (1)
- Backup software BZR-20 (1)

Optional Accessories

- RMM-10 Rack Mount Kit

Optional Boards

- HKDS-X3010 Distribution Board
- HKDS-X3011 SD Serial Input Board
- HKDS-X3064 SD/HD Serial Output Board
- HKDS-X3060 SD/HD Matrix Board
- HKDS-X3051 SD Serial Output Board
- HKDS-X3050 SD Matrix Board
- HKDS-X3014 SD/HD Serial Input Board

Optional Software

- BZR-2000 Routing Switcher Control Software

Optional Peripherals

- BKS-R1617 Multi-Display Control Unit
- BKS-R1618 Universal Control Unit
- BKS-R3216 Multi-BUS Control Unit
- BKS-R3219 Universal Control Unit
- BKS-R3220 X-Y Control Unit
- BKS-R3240A X-Y Control Unit
- BKS-R3242A X-Y Control Unit
- BKS-R3248A X-Y Control Unit
- BKS-R3400 Routing Switcher Control Panel
- BKS-R3281 Single Status Display Unit
- BKS-R3280 Single Status Display Unit

Specifications

Inputs/outputs

REMOTE 1:

- S-BUS, BNC type (1)
- Data transfer rate: 312 kb/s
- Data transfer method: BI-PHASE SPACE
- Transmission distance: 500 m (with Belden 8281, Fujikura 5C2V or equivalent 75 Ω coaxial cable).
- Expandable to 1000 m with a BKPF-L803 S-BUS Isolator/Expander

REMOTE 2:

- Complies with RS-422A signal standards
- D-sub 9-pin (1)
- Data transfer rate: 38.4 kb/s

Protocol:

- Cart+

REMOTE 3:

- Complies with RS-232C signal standards
- D-sub 9-pin male (1)
- Terminal: 9.6/38.4 kb/s DTR control, 8 bits, no parity, 1 stop bit

REF IN:

- Tri-level sync/Black burst: BNC with loop-through (1)

NETWORK:

- 10Base-T, RJ-45 (1)

General

- Power requirements: 100 to 240 V AC, 50/60 Hz
- Power consumption: 70 W (16 x 16, 1.5 Gb/s)
- Operational temperature: 5 to 40 $^{\circ}$ C (41 to 104 $^{\circ}$ F)
- Operational humidity: 10 to 90%
- Dimensions (W x H x D): 440 x 43.6 x 520 mm (17 3/8 x 1 3/4 x 20 1/2 inches)
- Mass: Approx. 8.5 kg (18 lb 12 oz) (without modules)

Service parts: Extension Board, Maintenance Manual Part II, Protocol Manual

DVS-128 Routing Switcher

The DVS-128 is a compact 128 inputs and 128 outputs routing switcher capable of switching analog video, analog audio and digital audio signals at the same time. It can convert an analog audio input into a digital audio output, and vice versa. Installation of up to four 32-input blocks and four 32-output blocks is allowed. Input and output blocks for analog video, analog audio and digital audio are available. Video and audio blocks can be installed together for married or unmarried A/V switching.

Features

- * Matrix size up to 128 x 128
- * Handles analog video, AES/EBU audio and analog audio in blocks of 32 inputs and 32 outputs to form square or rectangular matrix
- * Typical audio matrix configuration — I/O 1-32 analog audio in to AES/EBU audio out; I/O 33-64 AES/EBU audio in to analog audio out; I/O 65-96 AES/EBU audio; I/O 97-128 analog audio
- * Dual references of 525 and 625 allow simultaneous 2-standard vertical interval switching of 60, 59.94 and 50 Hz in blocks of 32 outputs
- * Monitoring outputs in blocks of 32 channels
- * All plug-in function boards can be hot-swapped for operational convenience
- * Each signal type can be mapped into S-BUS space of either 1024 x 1024 with 8 levels, or 1024 x 512 with 16 levels
- * Up to 2048 Description Names registered in eight alphanumeric characters
- * 32 name types selectable
- * Unlimited element groups in tie-line management
- * Mounts in a 19-inch rack, 14U high

Supplied Accessories

- Operation manual (1)
- Installation manual (1)
- Maintenance manual part 1 (1)
- 75 Ω terminator (3)
- T-bridge (1)
- Unit (1)

Optional Accessories

- RMM-18DV Rack Slide Kit
- RCC-G cables 9-pin/9-pin Cable

Optional Boards

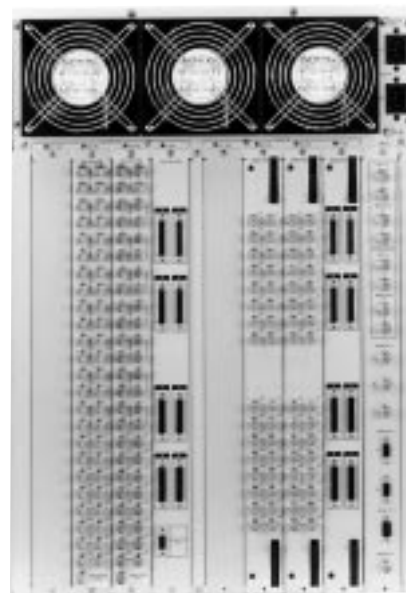
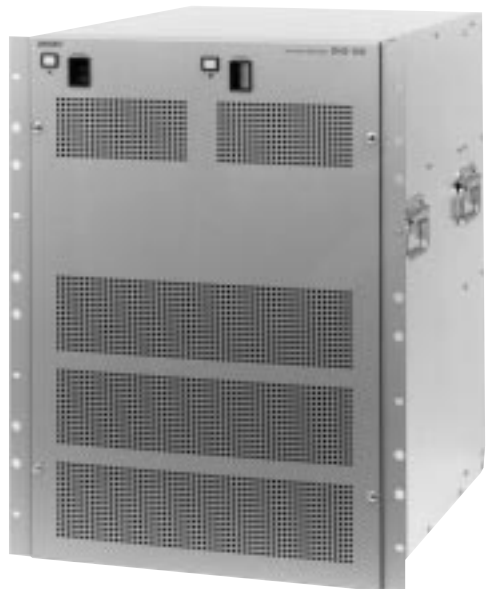
- BKDS-AA10 Analog Audio Input Board with 32 channels
- BKDS-AA11 Analog Audio Output Board with 32 channels
- BKDS-AV10 Analog Video Input Board with 32 channels
- BKDS-AV11 Analog Video Output Board with 32 channels
- BKDS-DA10 AES/EBU Input Board with 32 channels
- BKDS-DA11 AES/EBU Output Board with 32 channels

Optional Software

- BZR-2000 Routing Switcher Control Software

Optional Peripherals

- BKS-R1617 Multi-Display Control Unit
- BKS-R1618 Universal Control Unit
- BKS-R3216 Multi-BUS Control Unit
- BKS-R3219 Universal Control Unit
- BKS-R3220 X-Y Control Unit
- BKS-R3240A X-Y Control Unit
- BKS-R3242A X-Y Control Unit
- BKS-R3248A X-Y Control Unit
- BKS-R3280 Single Status Display Unit
- BKS-R3281 Single Status Display Unit



Rear Panel

Routing Switchers

Specifications

Control

REMOTE 1:

Standard S-BUS

Connector type: BNC type (3)

Protocol: S-BUS

Transfer speed: 312 kb/s/1250 kb/s

REMOTE 2:

RS-422A

Connector type: D-sub 9-pin female (2)

Protocol: Sony CART+ protocol

Transfer speed: 38.4 kb/s

REMOTE 3:

RS-232C

Connector type: D-sub 9-pin male (1)

Protocol: Terminal/ISR/Data Backup

Transfer speed: 9600 b/s/38.4 kb/s

REMOTE 4:

Monitor S-BUS

Connector type: BNC (1)

Protocol: S-BUS

Transfer speed: 312 kb/s

Video connectors:

BNC type

Inputs return loss:

More than 40 dB DC to 5 MHz

Clamping:

Pedestal clamping or DC coupled

Frequency response:

100 kHz to 10 MHz, +/-0.15 dB

10 MHz to 30 MHz, +0.5/-1.0 dB,

DG:

Less than 0.1%

DP:

Less than 0.1 °

Signal to noise ratio:

More than 73 dB at 5 MHz

Crosstalk:

Less than -60 dB at 5 MHz

Analog audio

Inputs connector:

D-sub 25-pin w/stereo 4 channels by 1 connector

Inputs impedance:

20 k Ω /600 Ω internally selectable

Max inputs level:

+24 dBm, balanced

Converter:

ADC 48 kHz/20 bits, Linear, AES/EBU digital audio

Frequency response:

20 Hz to 20 kHz, +0.2/-0.3

Distortion:

0.05% or less (1 kHz, reference level, 30 kHz low pass filter)

Signal to noise ratio:

More than 90 dB (30 kHz low pass filter)

Crosstalk:

Less than -90 dB to 15 kHz

Converter:

DAC 48 kHz/20 bits

Maximum output level:

+24 dBm into 600 Ω balanced.

Output impedance:

Approx. 20 Ω

Output connector:

D-sub 25-pin w/stereo 4 channels by 1 connector

AES / EBU digital audio

Inputs connector:

BNC type

Signal standards:

AES/EBU specification

75 Ω , unbalanced

SMPTE276M-1995

Television-Transmission of AES/EBU digital audio signals over coaxial cable

Inputs signal level:

1 Vp-p

Max inputs cable length:

600 m max. (When using a Belden

8281, Fujikura 5C2V or equivalent

coaxial cable)

Reference:

Word sync and analog video signal

Outputs connector:

BNC type

General

Power requirements:

100 to 240 V AC, 50/60 Hz

Power consumption:

600 VA max.

Dimensions (W x H x D):

424 x 620 x 550 mm

(16 3/4 x 24 1/2 x 21 3/4 inches)

Mass:

Approx. 40 kg (88.18 lb)

Service parts: Extension board EX-717 (Part No. A-8323-641-A), Extension board EX-681 (A-8323-641), Maintenance manual Part II, Protocol Manual

DVS-RS1616 RS-422A Remote Routing Switcher

The DVS-RS1616 is a 16 inputs and 16 outputs routing switcher for RS-422A control signals. It can also operate as a 32-port bi-directional router for master/slave applications. Router control is by S-BUS and RS-422A. S-BUS is a highly sophisticated system, providing communication and tally management with BKS-R Series routing switcher control units, Sony DVS Series video switchers and so on. S-BUS also interfaces with third-party equipment. Among the many features that S-BUS provides are multi-level working, signal breakaway, phantom operation of crosspoints and tie-line management. Multiple DVS-RS1616 units, fitted with cascade kits, can be connected to form a single matrix as large as 256 x 256. An RS-232C port provides a PC interface for router set up. Router data is maintained in memory by a 24-hour battery backup. The DVS-RS1616 mounts in a standard 19-inch rack and is 8U high.

Features

- * 16 x 16 switching matrix for RS-422A control signals *
- Expandable to provide a maximum matrix size of 256 x 256 *
- S-BUS and RS-422A control *
- Backup power supply and CPU options



Rear Panel

Supplied Accessories

- AC power cord (for U.S.A and Canada) (1)
- AC power cord (for Europe and U.K.) (1)
- AC plug adaptor (1)
- 75 Ω terminators (4)
- T-bridge (1)
- Plug holder B (black) (1)
- Plug holder B (gray) (1)
- Operation manual (1)
- Maintenance manual (1)
- Installation manual (1)

Optional Accessories

- RCC-G cables 9-pin/9-pin Cable
- RMM-30 Rack Mount Rail

Optional Boards

- BKDS-RS1690 Backup Control Board

Optional Peripherals

- BKS-R1608 Universal Control Unit
- BKS-R1617 Multi-Display Control Unit
- BKS-R1618 Universal Control Unit
- BKS-R3216 Multi-BUS Control Unit
- BKS-R3219 Universal Control Unit
- BKS-R3220 X-Y Control Unit
- BKS-R3240A X-Y Control Unit
- BKS-R3242A X-Y Control Unit
- BKS-R3248A X-Y Control Unit
- BKDS-RS1691 Backup Power Supply

Specifications

Inputs/outputs

- RS-422A input output:
 - 9-pin, complying to RS-422A standards
- Reference video signal inputs:
 - REF IN connectors (BNC type) (2), high impedance, analog video, one is for loop-through connection
- Cascade inputs:
 - CASCADE IN (BKDS-RS1620) 1.27 mm pitch connectors (68-pin type) (7)
- Cascade outputs:
 - CASCADE OUT (BKDS-RS1620) 1.27 mm pitch connectors (68-pin type) (7)
- AC power inputs:
 - 3-pin AC connectors (2)

Remote control connectors

- REMOTE 1:
 - S-BUS (BNC type) (4), 47 kΩ input
 - Data transfer method: BI-PHASE SPACE
 - Data transfer rate: 312.5 kb/s
 - Cable length: 500 m max. (when using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)
 - Checksum: HDLC CRC-CCIT
 - x 16 + x 12 + x 5 + 1

REMOTE 2:

- Complying with RS-422A signal standards
- D-sub 9-pin (1), 100 Ω/10 kΩ
- Data transfer rate: 38.4 kb/s

REMOTE 3:

- Complying with RS-232C standard
- D-sub 25-pin (1), 9600 b/s, DTR control
- 8-bit, no parity, no check, 1 stop bit

General

- Power requirements:
 - 100 to 240 V AC, 50/60 Hz
 - 1.3 to 0.8 A
- Power consumption:
 - 70 W
- Operating temperature:
 - 5 to 40 °C (41 to 104 °F)
- Storage temperature:
 - 20 to 60 °C (-4 to 140 °F)
- Dimensions (W x H x D):
 - 482 x 354.4 x 450 mm
 - (19 x 14 x 17 3/4 inches)
 - (Excluding projecting parts)
- Mass:
 - Approx. 25 kg (55 lb 2 oz)

DVS-TC3232 Time Code Routing Switcher

The DVS-TC3232 is a 32 inputs and 32 outputs routing switcher for 32 time code signals. Router control is by S-BUS and RS-422A. S-BUS is a highly sophisticated system, providing communication and tally management with BKS-R Series routing switcher control units, Sony DVS Series video switchers and so on. S-BUS also interfaces with third-party equipment. Among the many features that S-BUS supports are multi-level working, signal breakaway, phantom operation of crosspoints and tie-line management. Multiple DVS-TC3232 units, fitted with cascade kits, can be connected to form a single matrix as large as 256 x 256. An RS-232C port provides a PC interface. Router data is maintained in memory by a 24-hour battery backup. The DVS-TC3232 mounts in a standard 19-inch rack and is 8U high.

Features

- * 32 x 32 switching matrix for time code signals *
- Expandable to provide a maximum matrix size of 256 x 256
- * S-BUS and RS-422A control
- * Backup power supply and CPU options



Rear Panel

Supplied Accessories

- AC power cord (for U.S.A and Canada) (1)
- AC power cord (for Europe and U.K.) (1)
- AC plug adaptor (1)
- 75 Ω terminators (4)
- T bridge (1)
- Plug holder B (black) (1)
- Plug holder B (gray) (1)
- Operation manual (1)
- Maintenance manual (1)
- Installation manual (1)

Optional Boards

- BKDS-RS1690 Backup Control Board

Optional Peripherals

- BKS-R1608 Universal Control Unit
- BKS-R1617 Multi-Display Control Unit
- BKS-R1618 Universal Control Unit
- BKS-R3216 Multi-BUS Control Unit
- BKS-R3219 Universal Control Unit
- BKS-R3220 X-Y Control Unit
- BKS-R3240A X-Y Control Unit
- BKS-R3242A X-Y Control Unit
- BKS-R3248A X-Y Control Unit
- BKDS-RS1620 Cascade Set
- BKDS-RS1691 Backup Power Supply
- RCC-R cables Cascade Connection Cable
- RCC-G cables 9-pin/9-pin Cable
- RMM-30 Rack Mount Rail

Specifications

Inputs/outputs

- Time code inputs:
 - XLR 3-pin, female connectors (32)
- Time code outputs:
 - XLR 4-pin, male connectors (32)
- Reference video signal inputs:
 - REF IN connectors (BNC type) (2), high impedance, analog video, one is for loop-through connection
- Cascade inputs:
 - CASCADE IN (BKDS-RS1620) 1.27 mm pitch connectors (68-pin type) (7)
- Cascade outputs:
 - CASCADE OUT (BKDS-RS1620) 1.27 mm pitch connectors (68-pin type) (7)
- AC power inputs:
 - 3-pin AC connectors (2)

Remote control connectors

- REMOTE 1:
 - S-BUS (BNC type) (4), 47 kΩ input
 - Data transfer method: BI-PHASE SPACE
 - Data transfer rate: 312.5 kb/s
 - Cable length: 500 m max. (When using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)
 - Checksum: HDLC CRC-CCIT
 - x 16 + x 12 + x 5 + 1

REMOTE 2:

- Complying with RS-422A signal standards
- D-sub 9-pin (1), 100 Ω/10 kΩ
- Data transfer rate: 38.4 kb/s

REMOTE 3:

- Complying with RS-232C standard for terminal correction
- D-sub 25-pin (1)
- 9600 b/s, DTR control
- 8-bit, No parity, No check, 1 stop bit

General

- Power requirements:
 - 100 to 240 V AC, 50/60 Hz
 - 1.3 to 0.8 A
- Power consumption:
 - 70 W
- Operating temperature:
 - 5 to 40 °C (41 to 104 °F)
- Storage temperature:
 - 20 to 60 °C (-4 to 140 °F)
- Dimensions (W x H x D)
 - 482 x 354.4 x 450 mm
 - (19 x 14 x 17 3/4 inches)
 - (Excluding projecting parts)
- Mass:
 - Approx. 25 kg (55 lb 2 oz)

BVS-A3232 Analog Audio Routing Switcher

The BVS-A3232 is a 32 inputs and 32 outputs routing switcher for analog audio signals. It can also operate as 16 x 16 two-channel switcher for stereo applications. Router control is by S-BUS and RS-422A. S-BUS is a highly sophisticated system, providing communication and tally management with BKS-R Series routing switcher control units, Sony DVS Series video switchers and so on. S-BUS also interfaces with third-party equipment. Among the many features that S-BUS supports are multi-level working, signal breakdown, phantom operation of crosspoints and tie-line management. An RS-232C port provides a PC interface. Router data is maintained in memory by a 24-hour battery backup. The BVS-A3232 mounts into a standard 19-inch rack and is 3U high.



Rear Panel

Features

* 32 x 32 switching matrix for analog audio signals *
Transformer I/O * S-BUS and RS-422A control * Backup
power supply and CPU options

Supplied Accessories

Operation manual (1)
Installation manual (1)
Maintenance manual (1)
75 Ω terminators (3)
T-bridge (B) (1)
D-sub connector screws (2)
Audio connectors (32)

Optional Accessories

RCC-G cables 9-pin/9-pin Cable
RMM-30 Rack Mount Rail

Optional Peripherals

BKS-R1608 Universal Control Unit
BKS-R1617 Multi-Display Control Unit
BKS-R1618 Universal Control Unit
BKS-R3216 Multi-BUS Control Unit
BKS-R3219 Universal Control Unit
BKS-R3220 X-Y Control Unit
BKS-R3240A X-Y Control Unit
BKS-R3242A X-Y Control Unit
BKS-R3248A X-Y Control Unit
BKS-R3280 Single Status Display Unit
BKS-R3281 Single Status Display Unit

Specifications

Inputs/outputs —

Reference video signal inputs:
REF IN connectors (BNC type) (2), high
impedance, analog audio signal, with
loop-through output
Remote control connectors
REMOTE 1 A, B, C:
S-BUS (BNC type) (4), 47 kΩ input
Data transfer method: BI-PHASE
SPACE
Data transfer rate: 312.5 kb/s
Cable length: 500 m max. (When
using a Belden 8281, Fujikura 5C2V
or equivalent coaxial cable)
Checksum: HDLC CRC-CCIT
x 16 + x 12 + x 5 + 1
REMOTE 2:
Complies with RS-422A signal
standard with loop-through output
D-sub 9-pin (2), 100 Ω/10 kΩ
Data transfer rate: 38.4 kb/s

REMOTE 3:

Complies with RS-232C signal
standard for connecting a terminal
D-sub 25-pin
(Fixed with M2.6 screws) (1)

Terminal:

9600 b/s, DTR control, 8-bit, no parity,
no check, 1 stop bit

ISR:

9600 b/s, 7-bit, ODD parity, 1 stop bit

AC power input:

3-pin AC IN connectors (2)

Audio signals

Audio signal inputs:
6-pin connector (16) for 32 inputs
Audio signal outputs:
6-pin connector (16) for 32 outputs
Input impedance:
100 kΩ/600 Ω (selectable)
Standard input/output level:
+4 dBm
Maximum input level:
+24 dBm
Maximum output level:
+24 dBm (600 Ω load, balanced)
Frequency response:
±0.1 dB
(20 kHz to 20 kHz, 1 kHz+4 dBm)
Distortion:
0.01% (20 Hz to 20 kHz, with +24 dBm
output)
Crosstalk:
Less than -80 dB (20 Hz to 20 kHz, with
+24 dBm output)
Signal-to-noise ratio:
More than 85 dB
(30 kHz LPF, nominal)

General

Power requirements:
100 to 240 V AC, 50/60 Hz
Current consumption:
1.2 to 0.6 A
(With all optional boards installed)
Operating temperature:
5 to 40 °C (41 to 104 °F)

Dimensions (W x H x D):

424 x 132 x 500 mm
(16 3/4 x 5 1/4 x 19 3/4 inches)

Mass:

Approx. 16 kg (35 lb 4 oz)
(With all optional boards installed)

BVS-V3232 Analog Video Routing Switcher

The BVS-V3232 is a 32 inputs and 32 outputs routing switcher for NTSC/PAL composite analog video signals. Router control is by S-BUS and RS-422A. S-BUS is a highly sophisticated system, providing communication and tally management with BKS-R Series routing switcher control units, Sony DVS Series video switchers and so on. S-BUS also interfaces with third-party equipment. Among the many features that S-BUS supports are multi-level working, signal breakaway, phantom operation of crosspoints and tie-line management. An RS-232C port provides a PC interface for router set up. Router data is maintained in memory by a 24-hour battery backup. The BVS-V3232 mounts in a standard 19-inch rack and is 3U high.



Rear Panel

Features

* 32 x 32 switching matrix for composite analog video signals * S-BUS and RS-422A control * Backup power supply and CPU options

Supplied Accessories

Operation manual (1)
Installation manual (1)
Maintenance manual (1)
75 Ω terminations (3)
T-bridge (B) (1)
D-sub connector screws (2)

Optional Accessories

RCC-G cables 9-pin/9-pin Cable
RMM-30 Rack Mount Rail

Optional Boards

BKDS-RS1690 Backup Control Board

Optional Peripherals

BKDS-PV3291 Backup Power Supply Unit
BKS-R1608 Universal Control Unit
BKS-R1617 Multi-Display Control Unit
BKS-R1618 Universal Control Unit
BKS-R3216 Multi-BUS Control Unit
BKS-R3219 Universal Control Unit
BKS-R3220 X-Y Control Unit
BKS-R3240A X-Y Control Unit
BKS-R3242A X-Y Control Unit
BKS-R3248A X-Y Control Unit
BKS-R3280 Single Status Display Unit
BKS-R3281 Single Status Display Unit

Specifications

Inputs/outputs —

Reference video signal inputs:
REF IN connectors (BNC type) (2), high impedance, analog video signal, with loop-through output

Remote control connectors
REMOTE 1 A, B, C:
S-BUS (BNC type) (4), 47 k Ω input
Data transfer method: BI-PHASE SPACE
Data transfer rate: 312.5 kb/s
Cable length: 500 m (when using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)
Checksum: HDLC CRC-CCIT
 $x 16 + x 12 + x 5 + 1$

REMOTE 2:
Complies with RS-422A signal standard with loop through output
D-sub 9-pin (2), 100 Ω /10 k Ω
Data transfer rate: 38.4 kb/s

REMOTE 3:

Complies with RS-232C signal
Standard for connecting a terminal
D-sub 25-pin
(Fixed with M2.6 screws) (1)

Terminal:

9600 b/s, DTR control
8-bit, No parity, No check, 1 stop bit

ISR:

9600 b/s
7-bit, ODD parity, 1 stop bit

AC power input:

3-pin AC IN connectors (2)

Video signals

DG:

Less than 0.5% (1 Vp-p, 10 to 90%)

DP:

Less than 5° (1 Vp-p, 10 to 90%)

Frequency response:

± 0.2 dB (100 kHz to 8 MHz)

Crosstalk:

Less than -50 dB (at 5 MHz)

Crosspoint delay:

Less than $\pm 1\%$
(Between two inputs at 4.43 MHz)

Signal-to-noise ratio:

More than 65 dB (5 MHz, low pass)

Input return loss:

More than 42 dB

K factor:

Less than 0.5%

Tilt:

Less than 1%

Output gain stability:

± 0.1 dB

General

Power requirements:
100 to 240 V AC, 50/60 Hz

Current consumption:
1.2 to 0.6 A
(With all optional boards installed)

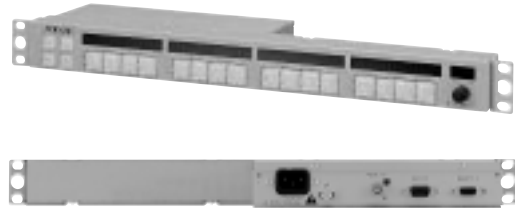
Operating temperature:
5 to 40 °C (41 to 104 °F)

Dimensions (W x H x D):
424 x 132 x 500 mm
(16 3/4 x 5 1/4 x 19 3/4 inches)

Mass:
Approx. 16 kg (35 lb 4 oz)
(With all optional boards installed)

BKS-R1617 Multi-Display Control Unit

The BKS-R1617 multi-display control unit controls matrix cross points in routers connected to an S-BUS system. The BKS-R1617 also controls the monitoring output of routers that have this facility. Source and destination switching is performed with 16 buttons. The monitoring signal can also be selected as a destination signal. The shallow depth of the unit makes it easy to accommodate the BKS-R1617 in front of a desk-mounted switcher control panel.



Rear Panel

Features

- * Router control in S-BUS systems
- * Fully compliant with expanded S-BUS systems
- * Source/destination selection by scrolling through source and destination names using the Selector knob
- * Four-digit display for each select button
- * Button re-assignment using the Selector knob
- * Improved monitor function for the selection of destinations
- * Alternate source switching using Chop function
- * Sources selectable to levels
- * Sources searched by category
- * Access can be restricted to a defined block of crosspoints
- * Large selector buttons show source and destination name (Status shown by button color)
- * Several crosspoints switchable with a single button (Phantom function)
- * Route function for expanded sources
- * Number of sources and destinations controlled expandable with additional units
- * Control bridge between RS-422A (cart+ protocol) and S-BUS
- * Easy ROM update
- * Single cable connection
- * Reduced depth helps in desk mounting applications

Applicable Models

BVS-A3232 Analog Audio Routing Switcher
 BVS-V3232 Analog Video Routing Switcher
 DVS-128 Routing Switcher
 DVS-RS1616 RS-422A Remote Routing Switcher
 DVS-TC3232 Time Code Routing Switcher
 HDS-X3400 Multi Bit-Rate Routing Switchers
 HDS-X3600 Multi Bit-Rate Routing Switchers
 HDS-X3700 Multi Bit-Rate Routing Switchers
 HDS-X5800 Multi Bit-Rate Routing Switcher

Supplied Accessories

Operation and maintenance manual (1)
 BNC T-bridge connector (1)

Specifications

Control signals

REMOTE 1:

S-BUS (BNC type) (1)
 Data transfer method: BI-PHASE SPACE
 Data transfer rate: 312.5 kb/s
 Max. cable length 500 m
 (when using Belden 8281, Fujikura 5C2V or equivalent 75 Ω coaxial cable).
 Expandable to 1000 m with a BKPF-L803 S-BUS Isolator/Expander

REMOTE 2:

D-sub 9-pin (1)
 Data transfer method: Conforms to the EIA RS-422A Cart+
 Data transfer rate: 38.4 kb/s

RS-232C:

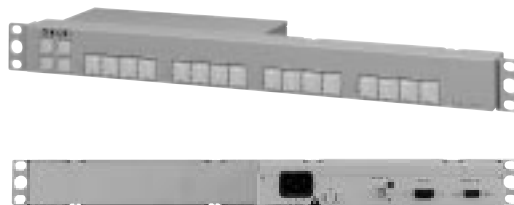
D-sub 9-pin male (1)
 Data transfer method: 8-bit, no parity, 1 stop bit
 Data transfer rate: 19.2 kb/s

General

Power requirements:
 100 to 240 V AC, 50/60 Hz
 Current consumption:
 0.35 A
 Operating temperature:
 0 to 45 °C (32 to 113 °F)
 Dimensions (W x H x D):
 440 x 44 x 120 mm
 (17 3/8 x 1 3/4 x 4 3/4 inches)
 Mass:
 Approx. 1.5 kg (3 lb 5 oz)

BKS-R1618 Universal Control Unit

The BKS-R1618 universal control unit controls matrix cross points in routers connected to an S-BUS system. The BKS-R1618 also controls the monitoring output of routers that have this facility. Source and destination switching is performed with 16 buttons, whose functions are pre-defined with the control terminal connected to the primary station of the S-BUS system. The monitoring signal can also be selected as a destination signal. The shallow depth of the unit makes it easy to accommodate the BKS-R1618 in front of a desk-mounted switcher control panel.



Rear Panel

Features

- * Router control in S-BUS systems
- * Fully compliant with expanded S-BUS systems
- * Free assignment of sources/destinations to each button via BZR-2000 router system set-up software
- * Improved monitor function for the selection of destinations
- * Alternate source switching using Chop function
- * Sources selectable to levels
- * Large selector buttons show source and destination name (Status shown by button color)
- * Several crosspoints switchable with a single button (Phantom function)
- * Route function for expanded sources
- * Number of sources and destinations controlled expandable with additional units
- * Control bridge between RS-422A (cart+ protocol) and S-BUS
- * Easy ROM update
- * Single cable connection
- * Reduced depth helps in desk mounting applications

Applicable Models

BVS-A3232 Analog Audio Routing Switcher
 BVS-V3232 Analog Video Routing Switcher
 DVS-128 Routing Switcher
 DVS-RS1616 RS-422A Remote Routing Switcher
 DVS-TC3232 Time Code Routing Switcher
 HDS-X3400 Multi Bit-Rate Routing Switchers
 HDS-X3600 Multi Bit-Rate Routing Switchers
 HDS-X3700 Multi Bit-Rate Routing Switchers
 HDS-X5800 Multi Bit-Rate Routing Switcher

General

Power requirements:
 100 to 240 V AC, 50/60 Hz
 Current consumption:
 0.20 A
 Operating temperature:
 0 to 45 °C (32 to 113 °F)
 Dimensions (W x H x D):
 440 x 44 x 120 mm
 (17 3/8 x 1 3/4 x 4 3/4 inches)
 Mass:
 Approx. 1.5 kg (3 lb 5 oz)

Supplied Accessories

Operation and maintenance manual (1)
 BNC T-bridge connector (1)

Specifications

Control signal

REMOTE 1:

S-BUS (BNC type) (1)
 Data transfer method: BI-PHASE SPACE
 Data transfer rate: 312.5 kb/s
 Max. cable length 500 m (when using Belden 8281, Fujikura 5C2V or equivalent 75 Ω coaxial cable).
 Expandable to 1000 m with a BKPF-L803 S-BUS Isolator/Expander

REMOTE 2:

D-sub 9-pin (1)
 Data transfer method: conforms to the EIA RS-422A Cart+ protocol
 Data transfer rate: 38.4 kb/s

RS-232C:

D-sub 9-pin male (1)
 Data transfer method: 8-bit, no parity, 1 stop bit
 Data transfer rate: 19.2 kb/s

BKS-R3216 Multi-BUS Control Unit

The BKS-R3216 multi-bus control unit controls matrix cross points in routers connected to an S-BUS system. Any combination of inputs and outputs are controllable with a single 'take' button.

Features

- * Router control in S-BUS systems
- * Fully compliant with expanded S-BUS systems
- * Equipped with eight status display windows, each with eight alpha/ numerical symbols
- * Shows the sources/destinations/levels at a glance
- * 1024 destinations or 16 levels can be displayed using the Selector knob
- * Description name displayed in the Preset window (with 16 alpha/ numerical symbols)
- * Three source/destination selection systems available
- * BPS (D) Selection (Button-Per-Source or Destination)
- * Type plus Number Selection
- * Key Pad Entry (Telephone-style keypad for alpha/numeric entry of sources/destinations by name)
- * Improved monitor function for the selection of destinations
- * Alternate source switching using Chop function
- * Sources selectable to levels
- * Sources searched by category
- * Large selector buttons show source and destination name (Status shown by button color)
- * Several crosspoints switchable with a single button (Phantom function)
- * Route function for expanded sources
- * Number of sources and destinations controlled expandable with additional units
- * Control bridge between RS-422A (cart+ protocol) and S-BUS
- * Easy ROM update
- * Single cable connection
- * Reduced depth helps in desk mounting applications

Applicable Models

BVS-A3232 Analog Audio Routing Switcher
 BVS-V3232 Analog Video Routing Switcher
 DVS-128 Routing Switcher
 DVS-RS1616 RS-422A Remote Routing Switcher
 DVS-TC3232 Time Code Routing Switcher
 HDS-X3400 Multi Bit-Rate Routing Switchers
 HDS-X3600 Multi Bit-Rate Routing Switchers
 HDS-X3700 Multi Bit-Rate Routing Switchers
 HDS-X5800 Multi Bit-Rate Routing Switcher

Supplied Accessories

Operation and maintenance manual (1)
 BNC T-bridge connector (1)

Specifications

Control signal

REMOTE 1:

S-BUS (BNC type) (1)
 Data transfer method: BI-PHASE SPACE
 Data transfer rate: 312.5 kb/s
 Max. cable length 500 m (when using Belden 8281, Fujikura 5C2V or equivalent 75 Ω coaxial cable).
 Expandable to 1000 m with a BKPF-L803 S-BUS Isolator/Expander

REMOTE 2:

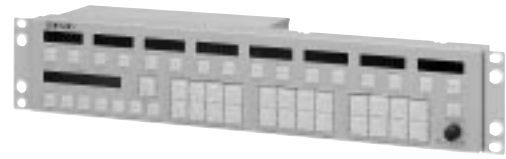
D-sub 9-pin (1)
 Data transfer method: Conforms to the EIA RS-422A Cart+
 Data transfer rate: 38.4 kb/s

RS-232C:

D-sub 9-pin male (1)
 Data transfer method: 8-bit, no parity, 1 stop bit
 Data transfer rate: 19.2 kb/s

General

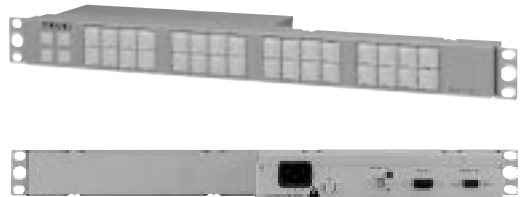
Power requirements:
 100 to 240 V AC, 50/60 Hz
 Current consumption:
 0.4 A
 Operating temperature:
 0 to 45 °C (32 to 113 °F)
 Dimensions (W x H x D):
 440 x 88 x 120 mm
 (17 3/8 x 3 1/2 x 4 3/4 inches)
 Mass:
 Approx. 1.5 kg (3 lb 5 oz)



Rear Panel

BKS-R3219 Universal Control Unit

The BKS-R3219 universal control unit controls matrix cross points in routers connected to an S-BUS system. The BKS-R3219 also controls the monitoring output of routers that have this facility. Source and destination switching is performed with 32 buttons, whose functions are pre-defined with the control terminal connected to the primary station of the S-BUS system. The monitoring signal can also be selected as a destination signal. The shallow depth of the unit makes it easy to accommodate the BKS-R3219 in front of a desk-mounted switcher control panel.



Rear Panel

Features

- * Router control in S-BUS systems
- * Fully compliant with expanded S-BUS systems
- * Free assignment of sources/destinations to each button via BZR-2000 Router System Set-up Software
- * Improved monitor function for the selection of destinations
- * Alternate source switching using Chop function
- * Sources selectable to levels
- * Large selector buttons show source and destination name (Status shown by button color)
- * Several crosspoints switchable with a single button (Phantom function)
- * Route function for expanded sources
- * Number of sources and destinations controlled expandable with additional units
- * Control bridge between RS-422A (cart+ protocol) and S-BUS
- * Easy ROM update
- * Single cable connection
- * Reduced depth helps in desk mounting applications

Applicable Models

BVS-A3232 Analog Audio Routing Switcher
 BVS-V3232 Analog Video Routing Switcher
 DVS-128 Routing Switcher
 DVS-RS1616 RS-422A Remote Routing Switcher
 DVS-TC3232 Time Code Routing Switcher
 HDS-X3400 Multi Bit-Rate Routing Switchers
 HDS-X3600 Multi Bit-Rate Routing Switchers
 HDS-X3700 Multi Bit-Rate Routing Switchers
 HDS-X5800 Multi Bit-Rate Routing Switcher

General

Power requirements:
 100 to 240 V AC, 50/60 Hz
 Current consumption:
 0.25 A
 Operating temperature:
 0 to 45 °C (32 to 113 °F)
 Dimensions (W x H x D):
 440 x 44 x 120 mm
 (17 3/8 x 1 3/4 x 4 3/4 inches)
 Mass:
 Approx. 1.5 kg (3 lb 5 oz)

Supplied Accessories

Operation and maintenance manual (1)
 BNC T-bridge connector (1)

Specifications

Control signal

REMOTE 1:

S-BUS (BNC type) (1)
 Data transfer method: BI-PHASE SPACE
 Data transfer rate: 312.5 kb/s
 Max. cable length 500 m (when using Belden 8281, Fujikura 5C2V or equivalent 75 Ω coaxial cable).
 Expandable to 1000 m with a BKPF-L803 S-BUS Isolator/Expander

REMOTE 2:

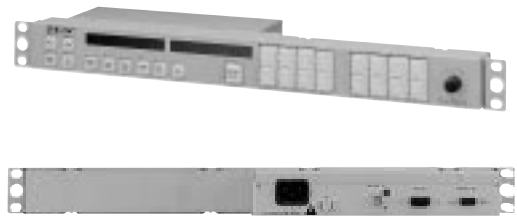
D-sub 9-pin (1)
 Data transfer method: Conforms to the EIA RS-422A Cart+
 Data transfer rate: 38.4 kb/s

RS-232C:

D-sub 9-pin male (1)
 Data transfer method: 8-bit, no parity, 1 stop bit
 Data transfer rate: 19.2 kb/s

BKS-R3220 X-Y Control Unit

The BKS-R3220 X-Y control unit controls matrix cross points in routers connected to an S-BUS system. Any combination of inputs and outputs, pre-defined with the control terminal, are controllable with a single 'take' button. The names of the selected sources and destinations are shown on the front panel displays. The shallow depth of the unit makes it easy to accommodate the BKS-R3220 in front of a desk-mounted switcher control panel.



Rear Panel

Features

- * Router control in S-BUS systems
- * Fully compliant with expanded S-BUS systems
- * Two source/destination selection systems available
- * BPS (D) Selection (Button-Per-Source or Destination)
- * Type plus Number Selection
- * Button re-assignment using the Selector knob
- * Improved monitor function for the selection of destinations
- * Alternate source switching using Chop function
- * Sources selectable to levels
- * Sources searched by category
- * Access can be restricted to a defined block of crosspoints
- * Large selector buttons show source and destination name (Status shown by button color)
- * Several crosspoints switchable with a single button (Phantom function)
- * Route function for expanded sources
- * Number of sources and destinations controlled expandable with additional units
- * Control bridge between RS-422A (cart+ protocol) and S-BUS
- * Easy ROM update
- * Single cable connection
- * Reduced depth helps in desk mounting applications

Applicable Models

BVS-A3232 Analog Audio Routing Switcher
 BVS-V3232 Analog Video Routing Switcher
 DVS-128 Routing Switcher
 DVS-RS1616 RS-422A Remote Routing Switcher
 DVS-TC3232 Time Code Routing Switcher
 HDS-X3400 Multi Bit-Rate Routing Switchers
 HDS-X3600 Multi Bit-Rate Routing Switchers
 HDS-X3700 Multi Bit-Rate Routing Switchers
 HDS-X5800 Multi Bit-Rate Routing Switcher

Supplied Accessories

Operation and maintenance manual (1)
 BNC T-bridge connector (1)

Specifications

Control signal

REMOTE 1:

S-BUS (BNC type) (1)
 Data transfer method: BI-PHASE SPACE
 Data transfer rate: 312.5 kb/s
 Max. cable length 500 m (when using Belden 8281, Fujikura 5C2V or equivalent 75 Ω coaxial cable).
 Expandable to 1000 m with a BKPF-L803 S-BUS Isolator/Expander

REMOTE 2:

D-sub 9-pin (1)
 Data transfer method: Conforms to the EIA RS-422A Cart+
 Data transfer rate: 38.4 kb/s

RS-232C:

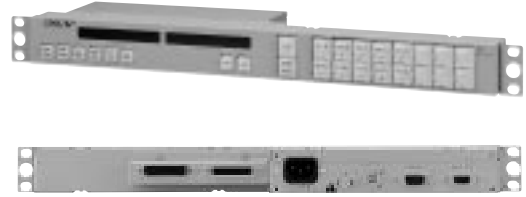
D-sub 9-pin male (1)
 Data transfer method: 8-bit, no parity, 1 stop bit
 Data transfer rate: 19.2 kb/s

General

Power requirements:
 100 to 240 V AC, 50/60 Hz
 Current consumption:
 0.25 A
 Operating temperature:
 0 to 45 °C (32 to 113 °F)
 Dimensions (W x H x D):
 440 x 44 x 120 mm
 (17 3/8 x 1 3/4 x 4 3/4 inches)
 Mass:
 Approx. 1.5 kg (3 lb 5 oz)

BKS-R3240A X-Y Control Unit

The BKS-R3240A X-Y control unit controls matrix cross points in routers connected to an S-BUS system. Any combination of inputs and outputs, pre-defined with the control terminal, are controllable with a single 'take' button. The names of the selected sources and destinations are shown on the front panel displays. The shallow depth of the unit makes it easy to accommodate the BKS-R3240A in front of a desk-mounted switcher control panel.



Rear Panel

Features

- * Router control in S-BUS systems
- * Fully compliant with expanded S-BUS systems
- * Compact 1U, 19-inch rack mounting design
- * Four display modes — Type plus Number display, Description Name display, 4-digit display, and Level display
- * Three source/destination selection systems available
- * BPS (D) Selection (Button-Per-Source or Destination)
- * Type plus Number Selection
- * Key Pad Entry (Telephone-style keypad for alpha/numeric entry of sources/destinations by name)
- * Eight GPI I/O terminals standard
- * Alternate source switching using Chop function
- * Sources selectable to levels
- * Large selector buttons show source and destination name (Status shown by button color)
- * Several crosspoints switchable with a single button (Phantom function)
- * Route function for expanded sources
- * Number of sources and destinations controlled expandable with additional units
- * Control bridge between RS-422A (cart+ protocol) and S-BUS
- * Easy ROM update
- * Single cable connection
- * Reduced depth helps in desk mounting applications

Applicable Models

BVS-A3232 Analog Audio Routing Switcher
 BVS-V3232 Analog Video Routing Switcher
 DVS-128 Routing Switcher
 DVS-RS1616 RS-422A Remote Routing Switcher
 DVS-TC3232 Time Code Routing Switcher
 HDS-X3400 Multi Bit-Rate Routing Switchers
 HDS-X3600 Multi Bit-Rate Routing Switchers
 HDS-X3700 Multi Bit-Rate Routing Switchers
 HDS-X5800 Multi Bit-Rate Routing Switcher

RS-232C:

D-sub 9-pin male (1)
 Data transfer method: 8-bit, no parity, 1 stop bit
 Data transfer rate: 19.2 kb/s

GPI I/O:

D-sub 25-pin male (1), D-sub 25-pin female (1)

General

Power requirements:
 100 to 240 V AC, 50/60 Hz
 Current consumption:
 0.25 A
 Operating temperature:
 0 to 45 °C (32 to 113 °F)
 Dimensions (W x H x D):
 440 x 44 x 120 mm
 (17 3/8 x 1 3/4 x 4 3/4 inches)
 Mass:
 Approx. 1.5 kg (3 lb 5 oz)

Supplied Accessories

Operation and maintenance manual (1)
 BNC T-bridge connector (1)

Specifications

Control signal

REMOTE 1:

S-BUS (BNC type) (1)
 Data transfer method: BI-PHASE SPACE
 Data transfer rate: 312.5 kb/s
 Max. cable length 500 m (when using Belden 8281, Fujikura 5C2V or equivalent 75 Ω coaxial cable).
 Expandable to 1000 m with a BKPF-L803 S-BUS Isolator/Expander

REMOTE 2:

D-sub 9-pin (1)
 Data transfer method: Conforms to the EIA RS-422A Cart+
 Data transfer rate: 38.4 kb/s

BKS-R3242A X-Y Control Unit

The BKS-R3242A X-Y control unit controls matrix cross points in routers connected to an S-BUS system. Any combination of inputs and outputs, pre-defined with the control terminal, are controllable with a single "take" button. The names of the selected sources and destinations are shown on the front panel displays. Source and destination switching is performed with 16/32 buttons. The monitoring signal can also be selected as a destination signal.

Features

- * Router control in S-BUS systems
- * Fully compliant with expanded S-BUS systems
- * Compact 2U, half 19-inch rack width design
- * Four display modes: Type plus Number display, Description Name display, 4-digit display, and Level display
- * Three source/destination selection systems available
- * BPS (D) Selection (Button-Per-Source or Destination)
- * Type plus Number Selection
- * Key Pad Entry (Telephone-style keypad for alpha/numeric entry of sources/destinations by name)
- * Eight GPI I/O terminals standard
- * Alternate source switching using Chop function
- * Sources selectable to levels
- * Large selector buttons show source and destination name (Status shown by button color)
- * Several crosspoints switchable with a single button (Phantom function)
- * Route function for expanded sources
- * Number of sources and destinations controlled expandable with additional units
- * Control bridge between RS-422A (cart+ protocol) and S-BUS
- * Easy ROM update
- * Single cable connection
- * Reduced depth helps in desk mounting applications

Applicable Models

BVS-A3232 Analog Audio Routing Switcher
 BVS-V3232 Analog Video Routing Switcher
 DVS-128 Routing Switcher
 DVS-RS1616 RS-422A Remote Routing Switcher
 DVS-TC3232 Time Code Routing Switcher
 HDS-X3400 Multi Bit-Rate Routing Switchers
 HDS-X3600 Multi Bit-Rate Routing Switchers
 HDS-X3700 Multi Bit-Rate Routing Switchers
 HDS-X5800 Multi Bit-Rate Routing Switcher

Supplied Accessories

Operation and maintenance manual (1)
 BNC T-bridge connector (1)

Specifications

Control signal

REMOTE 1:

S-BUS (BNC type) (1)
 Data transfer method: BI-PHASE SPACE
 Data transfer rate: 312.5 kb/s
 Max. cable length 500 m (when using Belden 8281, Fujikura 5C2V or equivalent 75 Ω coaxial cable).
 Expandable to 1000 m with a BKPF-L803 S-BUS Isolator/Expander

REMOTE 2:

D-sub 9-pin (1)
 Data transfer method: Conforms to the EIA RS-422A Cart+
 Data transfer rate: 38.4 kb/s

RS-232C:

D-sub 9-pin male (1)
 Data transfer method: 8-bit, no parity, 1 stop bit
 Data transfer rate: 19.2 kb/s

GPI I/O:

D-sub 25-pin male (1), D-sub 25-pin female (1)

General

Power requirements:
 100 to 240 V AC, 50/60 Hz
 Current consumption:
 0.25 A
 Operating temperature:
 0 to 45 °C (32 to 113 °F)
 Dimensions (W x H x D):
 220 x 88 x 120 mm
 (17 3/8 x 1 3/4 x 4 3/4 inches)
 Mass:
 Approx. 1.5 kg (3 lb 5 oz)



Rear Panel

BKS-R3248A X-Y Control Unit

The BKS-R3248A X-Y control unit controls matrix cross points in routers connected to an S-BUS system. Any combination of inputs and outputs, pre-defined with the control terminal, are controllable with a single 'take' button. Source and destination switching is performed with 32 buttons. The shallow depth of the unit makes it easy to accommodate the BKS-R3248 in front of a desk-mounted switcher control panel.

Features

- * Router control in S-BUS systems
- * Fully compliant with expanded S-BUS systems
- * Compact 2U, 19-inch rack mounting design
- * Four display modes: Type plus Number display, Description Name display, 4-digit display, and Level display
- * Three source/destination selection systems available
- * BPS (D) Selection (Button-Per-Source or Destination)
- * Type plus Number Selection
- * Key Pad Entry (Telephone-style keypad for alpha/numeric entry of sources/destinations by name)
- * Eight GPI I/O terminals standard
- * Alternate source switching using Chop function
- * Sources selectable to levels
- * Large selector buttons show source and destination name (Status shown by button color)
- * Several crosspoints switchable with a single button (Phantom function)
- * Route function for expanded sources
- * Number of sources and destinations controlled expandable with additional units
- * Control bridge between RS-422A (cart+ protocol) and S-BUS
- * Easy ROM update
- * Single cable connection
- * Reduced depth helps in desk mounting applications

Applicable Models

BVS-A3232 Analog Audio Routing Switcher
 BVS-V3232 Analog Video Routing Switcher
 DVS-128 Routing Switcher
 DVS-RS1616 RS-422A Remote Routing Switcher
 DVS-TC3232 Time Code Routing Switcher
 HDS-X3400 Multi Bit-Rate Routing Switchers
 HDS-X3600 Multi Bit-Rate Routing Switchers
 HDS-X3700 Multi Bit-Rate Routing Switchers
 HDS-X5800 Multi Bit-Rate Routing Switcher

Supplied Accessories

Operation and maintenance manual (1)
 BNC T-bridge connector (1)

Specifications

Control signal

REMOTE 1:

S-BUS (BNC type) (1)
 Data transfer method: BI-PHASE SPACE
 Data transfer rate: 312.5 kb/s
 Max. cable length 500 m (when using Belden 8281, Fujikura 5C2V or equivalent 75 Ω coaxial cable).
 Expandable to 1000 m with a BKPF-L803 S-BUS Isolator/Expander

REMOTE 2:

D-sub 9-pin (1)
 Data transfer method: Conforms to the EIA RS-422A Cart+
 Data transfer rate: 38.4 kb/s

RS-232C:

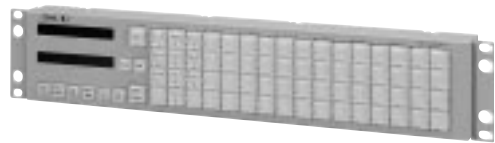
D-sub 9-pin male (1)
 Data transfer method: 8-bit, no parity, 1 stop bit
 Data transfer rate: 19.2 kb/s

GPI I/O:

D-sub 25-pin male (1), D-sub 25-pin female (1)

General

Power requirements:
 100 to 240 V AC, 50/60 Hz
 Current consumption:
 0.35 A
 Operating temperature:
 0 to 45 °C (32 to 113 °F)
 Dimensions (W x H x D):
 440 x 88 x 120 mm
 (17 3/8 x 1 3/4 x 4 3/4 inches)
 Mass:
 Approx. 2.1 kg (4 lb 10 oz)



Rear Panel

BKS-R3280 Single Status Display Unit

The BKS-R3280 is single status display unit showing alphabetic and numeric characters with bright, seven-segment, amber displays. The BKS-R3280 displays up to seven characters. Connected to a standard S-BUS or the monitor S-BUS data link, it shows router switching status. The unit can also display preset character strings from external equipment connected to the D-sub 25-pin parallel control TALLY connector. BKS-R3280 can be mounted in a standard 19-inch rack and are 1U high.



Rear Panel

Features

- * Signal information display in router systems
- * Display of source, destination, source line number and source status
- * Large displays with four-step brightness control
- * PGM and PST tally indication
- * S-BUS or parallel control

Applicable Models

BVS-A3232 Analog Audio Routing Switcher
BVS-V1201 Analog Video Routing Switcher
BVS-V1212 Analog Video Routing Switcher
BVS-V3232 Analog Video Routing Switcher
DVS-128 Routing Switcher
DVS-V1201 Digital Video Routing Switcher
DVS-V1616 Digital Video Routing Switcher
HDS-X3400 Multi Bit-Rate Routing Switchers
HDS-X3600 Multi Bit-Rate Routing Switchers
HDS-X3700 Multi Bit-Rate Routing Switchers
HDS-X5800 Multi Bit-Rate Routing Switcher

Supplied Accessories

Operation and maintenance manual (1)
BNC T-bridge connector (1)
Tally label (1)
AC plug adapter (1)
AC power cords (2)

Specifications

Inputs/outputs —

Parallel control:
INPUT connector (D-sub 25-pin type)
(1)
3 to 24 V DC
Low: 0.0 to 0.6 V
High: 3.0 V and higher
Control signal:
REMOTE (BNC type) (1), S-BUS
Data transfer method:
BI-PHASE SPACE
Data transfer rate:
312.5 kb/s
Cable length:
500 m max. (when using a Belden
8281, Fujikura 5C2V or equivalent
coaxial cable)

General

Power requirements:
100 to 240 V AC, 50/60 Hz
Power consumption:
11 W
Operating temperature:
5 to 40 °C (41 to 104 °F)
Dimensions (W x H x D):
483 x 44 x 150 mm
(19 1/8 x 1 3/4 x 6 inches)
Mass:
Approx. 2.4 kg (5 lb 5 oz)

BKS-R3281 Single Status Display Unit

BKS-R3281 is single status display unit showing alphabetic and numeric characters with bright, seven-segment, amber displays. The BKS-R3281 displays up to 16 characters, enabling it to show both source and destination information simultaneously. Connected to a standard S-BUS or the monitor S-BUS data link, it shows router switching status. The unit can also display preset character strings from external equipment connected to the D-sub 25-pin parallel control TALLY connector. BKS-R3281 can be mounted in a standard 19-inch rack and are 1U high.



BKS-R3280



BKS-R3280
Rear Panel

Features

- * Signal information display in router systems
- * Display of source, destination, source line number and source status
- * Large displays with four-step brightness control
- * PGM and PST tally indication
- * S-BUS or parallel control

Applicable Models

BVS-A3232 Analog Audio Routing Switcher
 BVS-V1201 Analog Video Routing Switcher
 BVS-V1212 Analog Video Routing Switcher
 BVS-V3232 Analog Video Routing Switcher
 DVS-128 Routing Switcher
 DVS-V1201 Digital Video Routing Switcher
 DVS-V1616 Digital Video Routing Switcher
 HDS-X3400 Multi Bit-Rate Routing Switchers
 HDS-X3600 Multi Bit-Rate Routing Switchers
 HDS-X3700 Multi Bit-Rate Routing Switchers
 HDS-X5800 Multi Bit-Rate Routing Switcher

Supplied Accessories

Operation and maintenance manual (1)
 BNC T-bridge connector (1)
 Tally label (1)
 AC plug adapter (1)
 AC power cords (2)

Specifications

Inputs/outputs —

Parallel control:

INPUT connector (D-sub 25-pin type)
 (1)
 3 to 24 V DC
 Low: 0.0 to 0.6 V
 High: 3.0 V and higher

Control signal:

REMOTE (BNC type) (1), S-BUS

Data transfer method:

BI-PHASE SPACE

Data transfer rate:

312.5 kb/s

Cable length:

500 m max. (when using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

General

Power requirements:

100 to 240 V AC, 50/60 Hz

Power consumption:

20 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Dimensions (W x H x D):

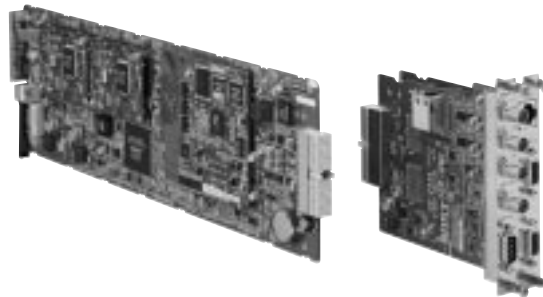
483 x 44 x 150 mm
 (19 1/8 x 1 3/4 x 6 inches)

Mass:

Approx. 2.5 kg (5 lb 10 oz)

HKSP-R80 Routing Switcher Controller

The HKSP-R80 routing switcher controller is a stand-alone primary station CPU board for Sony routing switchers. With the HKSP-R80 installed in a PFV-SP Series signal processing unit, a range of features is provided in addition to the primary functions of S-BUS SUB-NET control and conversion between S-BUS and Ethernet LAN. For CPU redundancy, the HKSP-R81 is available.



Features

*Provides primary station control or sub-net control in an S-BUS system *Networking applications — Setting, controlling and up/downloading files from PC with BZR-2000 routing switcher control software via a 10/100Base-T Ethernet based LAN/Internet; 10/100Base-T Ethernet based remote control; Can be accessed by up to 16 users; S-BUS and Ethernet conversion for S-BUS logging function; Supports SNMP Remote Maintenance protocol *HKSP-R81 routing switcher backup CPU — Hot-swappable *RS-422A and RS-232C connections *Supplied software — BZR-IF810 S-BUS SUB-NET Control Software; BZR-20 Routing Switcher Backup Software; BZR-21 Router Remote Control Software

The HKPF-SP/HKSP function boards install in PFV-SP Series Signal Processing Units in any combination with other HKPF-SP/HKSP function boards.

Applicable Models

PFV-SP3100 Signal Processing Unit
PFV-SP3300 Signal Processing Unit

Supplied Accessories

Operation manual (1)
Installation manual (1)
CD-ROM (1) (BZR-20 Data Backup Program / BZR-21 Router Remote Control Software / BZR-IF810 S-BUS SUB-NET Control Software)
75 Ω terminations (3)
T-bridge (1)

Optional Board

HKSP-R81 Routing Switcher Backup CPU

Optional Software

BZR-2000 Routing Switcher Control Software

Specifications

Remote —

Remote 1: S-BUS

Connectors:
BNC type (3)
Transfer speed:
312 Kb/s / 1250 Kb/s
Signal level:
1.8 V +/- 0.3 V (75 Ω),
1.1 V +/- 0.3 V (75 Ω)

Remote 2: RS-422A

Connectors:
D-SUB 9-pin female (2)
Protocol:
CART++
Transfer speed:
38.4 Kb/s

Remote 3: RS-232C

Connector type:
D-SUB 9-pin male (1)
Transfer speed:
38.4 Kb/s
DATA LAN: Ethernet
Connector:
RJ-45 (1), 10BASE-T / 100BASE-TX
TIME CODE
Connector:
BNC type (1)

General

Power requirement:
12 V (Supplied from the PFV-SP Series signal processing unit)
Power consumption:
1000 mA (HKSP-R80)
700 mA (HKSP-R81)
Operating temperature:
5 to 40 °C (41 to 104 °F)
Storage temperature:
-20 to 60 °C (-4 to 140 °F)
Operating humidity:
10 to 90%
Dimensions
Board (H x W):
112.2 x 388.3 mm
(4 1/2 x 15 3/8 inches)
Connector panel (W x H x D):
130 x 152.5 x 38 mm
(5 1/8 x 6 1/8 x 1 1/2 inches)
Mass:
Approx. 900 g (1 lb 16 oz)



Rear Panel

BKPF-R70A Routing Switcher Controller Board

The BKPF-R70A routing switcher controller board functions as the primary station of Sony S-BUS remote control system. It has the same control functionality as the CPU board for the Sony digital routing switchers when this is used as the primary station in a system, but with improved overall system and tally response. It can also function as a sub-net controller with BZR-IF310 software installed. In a system that includes BKPF-300 Series boards, the BKPF-R70A improves the functionality and mapping of these boards.

Features

- * Provides primary station control or sub-net control in an S-BUS system
- * Fully compliant with expanded S-BUS systems
- * 1024 x 1024 x 8 levels or 1024 x 512 x 16 levels
- * supports 32 types of signal names and 2048 description names
- * Dual control, S-BUS and RS-422 *
- * System redundancy using two BKPF-R70A boards
- * Routing switcher back-up software supplied
- * Supports ISR

The BKPF Series function boards install in both the PFV-D and the PFV-HD Series Interface Units. In a PFV-HD Series Interface Unit, they can be installed together with the HKPF Series function boards.

Applicable Models

PFV-D10 Digital Video Interface Unit
 PFV-D300 Digital Video Interface Unit
 PFV-D50A Digital Video Interface Unit
 PFV-HD50A HD Digital Video Interface Unit

Supplied Accessories

Operation manual (1)
 Installation manual (1)
 Slot number label (1)
 Routing switcher data backup software
 BZR-20 (1)

Optional Software

BZR-IF310 S-BUS SUB-NET Controller Software

Specifications

General

Power requirements:
 +5 V DC (supplied from the
 PFV-D/PFV-HD Series Interface Unit)

Current consumption:
 700 mA

Operating temperature:
 5 to 40 °C (41 to 104 °F)

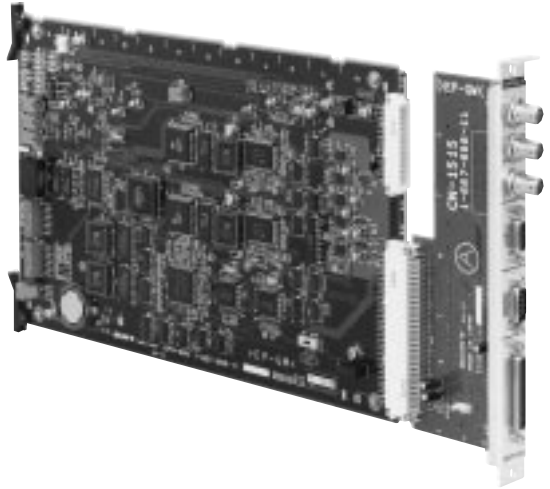
Operating humidity:
 10 to 90 %

Dimensions (H x W)
 Board:
 195 x 310 mm
 (7 3/4 x 12 1/4 inches)

Connector panel:
 195 x 25 mm
 (7 3/4 x 1 inches)

Mass
 Board:
 Approx. 520 g (1 lb 2 oz)

Connector panel:
 Approx. 160 g (6 oz)



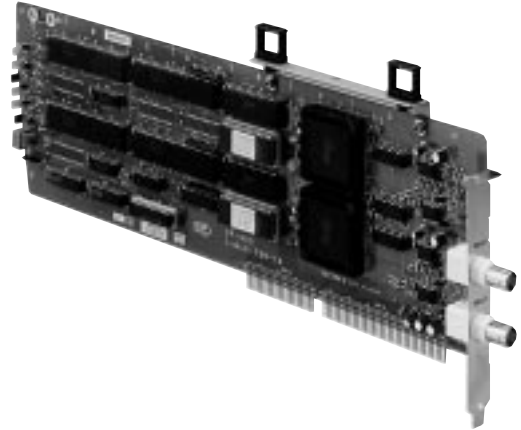
Rear Panel

BKS-R5001 S-BUS Interface Board

The BKS-R5001 is an S-BUS interface board for installation in an IBM PC/AT compatible machine running BZR-2000 Routing Switcher Control Software. This S-BUS interface board allows control of HDS-X Series routing switcher systems from a PC with BZR-2000 software installed.

Applicable Models

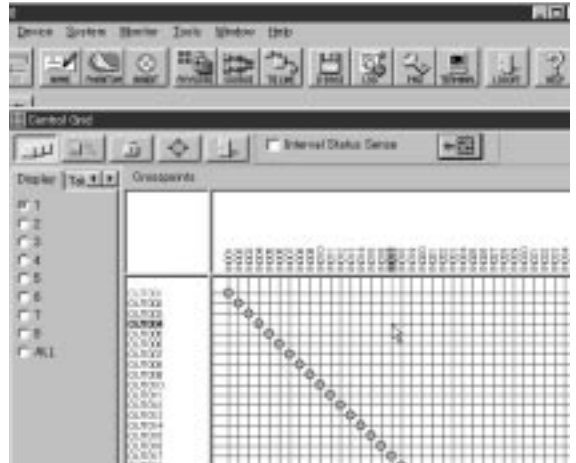
HDS-X3400 Multi Bit-Rate Routing Switchers
HDS-X3600 Multi Bit-Rate Routing Switchers
HDS-X3700 Multi Bit-Rate Routing Switchers
HDS-K5800 Multi Bit-Rate Routing Switcher
DVS-128 Routing Switcher
BKPF-R70A Routing Switcher Controller Board
HKSP-R80 Routing Switcher Controller



Rear Panel

BZR-2000 Routing Switcher Control Software

BZR-2000 software is "the complete router control kit", allowing full configuration, operation and maintenance of an S-BUS system from a single PC terminal. Operating using Windows 95®, Windows98®, Windows2000® or Windows NT™, the software provides multiple graphic display windows for easy operation and management. A full drag-and-drop facility for the configuration of different routing system devices, allows multiple data bases to be saved for alternative configurations. This feature is particularly useful when the facilities of an OB vehicle are regularly used for several different series of productions. BZR-2000 can be interfaced to a routing switcher either via an Ethernet, RS-232 terminal of a PC, or as a secondary station using an optional BKS-R5001 S-BUS interface board installed in the same PC. An optional BKV-100 overlay board installed in the PC provides in-picture monitoring of sources and destinations within the routing system.



Features

- * Installs in a PC for rapid setting up and on-line status monitoring of a Sony routing system
- * Operates on a PC running Windows 95/98 or Windows NT/2000®
- * Full on-line and off-line modes
- * Allows for the saving of multiple data bases for different system configurations
- * Drag-and-drop operation
- * Multiple window operation
- * Restricted user access via various system rights
- * Operates via an Ethernet, RS-232C or using a BKS-R5001 S-BUS board mounted in a PC
- * Optional BKV-100 PC overlay board for monitoring of routing system sources and destinations

Applicable Models

DVS-128 Routing Switcher
 HDS-X3400 Multi Bit-Rate Routing Switchers
 HDS-X3600 Multi Bit-Rate Routing Switchers
 HDS-X3700 Multi Bit-Rate Routing Switchers
 HDS-X5800 Multi Bit-Rate Routing Switcher
 BKPF-R70A Routing Switcher Controller Board
 HKSP-R80 Routing Switcher Controller

Control Panels

- * Used as a secondary station:
 BKS-R3280/3281,
 BKS-R1617/R3216/R3219 (Firmware V1.03 and higher),
 BKS-R1618/R3220,
 BKS-R3240A/R3242A/R3248A

Optional Board

BKS-R5001 S-BUS Interface Board

Specifications

Note:

BZR-2000 supports the following Sony routing switchers and control panels.

Routing Switchers

- * Used as a primary station:
 HDS-X5800/HDS-X3700/X3600/X3400,
 DVS-128, BKPF-R70A, HKSP-R80
- * Used as a secondary station:
 HDS-X5800/X3700/X3600/X3400,
 DVS-128/RS1616/TC3232,
 BVS-V3232/A3232
 ,BKPF-300/301/350/351, BKDS-7700,
 BZR-IF310.

BZR-IF310 S-BUS SUB-NET Controller Software

BZR-IF310 S-BUS sub-net controller software installs in the BKPF-R70A routing switcher controller board.

BZR-IF310 not only expands the capability of an S-BUS network to interface with a large number of devices, but also provides the advantages of sub-net topology in creating a powerful, fast and convenient network operating environment.

Features

- * Installs in a BKPF-R70A routing switcher controller board to form the S-BUS sub-net controller
- * Major increase in the number of devices that an S-BUS network can accommodate
- * 253 sub-nets can be constructed within an S-BUS network
- * Each sub-net can connect to as many as 253 control units
- * Provides a highly flexible and reliable decentralized control environment
- * Bus protection in a primary station common with sub-net stations
- * Improves response time by decentralizing communication load
- * Compliant with centralized network set-up and data management
- * The complete network can be set up via the primary station while the sub-net can be set up via the S-BUS sub-net controller (BKPF-R70A with BZR-IF310 installed)
- * Redundant operation available

Applicable Models

BKPF-R70A Routing Switcher Controller Board

PFV-D50A Digital Video Interface Unit

PFV-D10 Digital Video Interface Unit

PFV-HD50A HD Digital Video Interface Unit

PFV-D300 Digital Video Interface Unit

Cables

ECD-C cables	40
ECD-10C	40
ECD-30C	40
ECD-3C	40
RCC-R cables	40
RCC-5R	40

ECD-C cables XLR-3-Pin Type - XLR-3-Pin Type Digital Audio Interface Cable

ECD-10C
ECD-30C
ECD-3C

Applicable Models
BKPF-205 Audio/Video Multiplexer Board
BKPF-206 Audio/Video Demultiplexer Board

ECD-30C:
30m (100 ft)

Specifications

ECD-3C:
3m (10 ft)

ECD-10C:
10m (33 ft)



RCC-R cables Cascade Connection Cable

RCC-5R

Applicable Models
DVS-TC3232 Time Code Routing Switcher

Specifications

RCC-5R
5m



Common Accessories

RMM-30	42
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RMM-30 Rack Mount Rail

The RMM-30 is a rack mount rail designed to mount audio/video equipment into a 19-inch standard rack, and allow the equipment to be pulled forward for servicing access. The RMM-30 consists of a pair of rails (each rail having an inner and an outer rail), a stopper and a bracket. The pair of inner rails are fixed to the unit, while the pair of outer rails are fixed to the 19-inch rack. The inner rails are then slid into the outer rails. Equipment that satisfies the following conditions can be mounted in an equipment rack that has a depth of 660 to 830 mm (26 to 32 3/4 inches): Mass—less than 40 kg (88 lb 3 oz) Width between rail mounting surfaces —424 mm (16 3/4 inches) Includes appropriate fixing holes.

Applicable Models

BVS-A3232 Analog Audio Routing Switcher
BVS-V3232 Analog Video Routing Switcher
DVS-RS1616 RS-422A Remote Routing Switcher
DVS-TC3232 Time Code Routing Switcher
PFV-D300 Digital Video Interface Unit
PFV-D50A Digital Video Interface Unit
PFV-HD50A HD Digital Video Interface Unit



Interface Processor SP Series

PFV-SP3100	44
PFV-SP3300	45
HKSP-008HD	46
HKSP-061M	48
HKSP-105	50
HKSP-106	52
HKSP-300	54
HKSP-525	55
HKSP-313	57
HKSP-1125	59
HKPF-SP003	61
HKPF-SP021	63
HKPF-SP022	65
UCP-8060	67

PFV-SP3100 Signal Processing Unit

The PFV-SP3100 is a 1RU signal processing unit that accommodates up to four HKSP/HKPF-SP Series function boards with a redundant power supply. With an HKSP-300 processing module controller installed, PFV-SP Series processing boards can be managed via a LAN 100Base-T Ethernet network.



Features

- *Compact, high-density mounting frame for HKSP and HKPF-SP function boards
- *1RU high frame, fitting a 19-inches rack unit — Houses up to 4 HKSP/HKPF-SP Series function boards; Internal forced-air cooling
- *Accommodates a range of modules for multi-format, multi bit-rate compliant applications — Ideal migration path from SD to HD; Both HD tri-level sync and black burst signal can be used
- *Networking applications — Enables the setting, controlling, and up/downloading of the set-up data of other HKSP function boards in a PFV-SP Series signal processing unit when used in combination with a UCP-8060 universal control panel connected via a Ethernet 100Base-TX based network (When HKSP-300 installed)
- *Reference input to supply reference signal to installed function boards
- *High reliability and ease of maintenance — Optional hot-swappable back-up power supply; Front panel status indication of power supply units, frame and module boards; Rear panel Status Out connector

Supplied Accessories

Operation manual (1)
Installation manual (1)

Optional Boards

HKPF-SP003 Digital Video Distribution Amp
HKPF-SP021 Optical to Electrical Converter
HKPF-SP022 Electrical to Optical Converter
HKSP-008HD HD Frame/Line Synchronizer
HKSP-061M 8 x 4 Digital Video Selector
HKSP-105 HD Audio/Video Multiplexer Board
HKSP-106 HD Audio/Video Demultiplexer Board
HKSP-1125 HD Up-converter Board
HKSP-300 Processing Module Controller
HKSP-313 HD Color Corrector Board
HKSP-525 Down Converter Board
HKSP-R80 Routing Switcher Controller
HKSP-R81 Routing Switcher Backup CPU
UCP-8060 Universal Control Panel

General

Power requirements:
100 to 240 V AC, 50/60 Hz
Power supply capacity:
+12 V DC: Max 4.4 A
Operating temperature:
5 to 40 °C (41 to 104 °F)
Storage temperature:
-20 to 60 °C (-4 to 140 °F)
Operating humidity:
10 to 90% (no condensation)
Dimensions (W x H x D):
440 x 43.2 x 550 mm
(21 3/4 x 1 3/4 x 17 3/8 inches)

Service part: Maintenance manual

Optional Peripherals

HK-PSU01 Power Supply Unit

Specifications

Inputs/outputs

Remote:

S-BUS remote connector (BNC type) (1)

SYNC inputs:

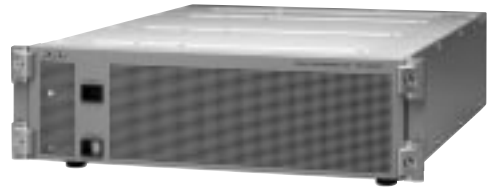
HD tri-level sync or black burst signal
(BNC type) (2) (with loop-through outputs)

Status output:

STATUS OUT
(mini D-sub 15-pin, female) (1)

PFV-SP3300 Signal Processing Unit

The PFV-SP3300 is a 3 RU signal processing unit that accommodates up to 17 processing modules that are compliant with multi-format and multi bit-rate operation. It has two reference inputs for SD and HD signals. With an HKSP-300 processing module controller installed, PFV-SP Series processing boards can be managed via a LAN 100Base-T Ethernet



Features

- *Compact and high-density mounting frame for HKPF-SP and HKSP processing modules — Compact 3 RU height size frame, fitting a 19-inches rack unit; Houses up to 17 HKPF-SP/HKSP Series modular boards; Internal forced-air cooling
- *Accommodates a range of modules for multi-format, multi bit-rate compliant applications — Ideal migration path from SD to HD; Both HD tri-level sync and black burst signal can be used
- *Networking applications — Enables the setting, controlling, and up/downloading of the set-up data of other HKSP function boards in a PFV-SP Series signal processing unit when used in combination with a UCP-8060 universal control panel connected via a Ethernet 100Base-TX based network (When HKSP-300 installed)
- *High reliability and ease of maintenance — Optional hot-swappable back-up power supply; Front panel status of power supply units, frame and module boards; Rear panel STATUS OUT connector



Rear Panel

Supplied Accessories

- Operation manual (1)
- Installation manual (1)

Optional Boards

- HKPF-SP003 Digital Video Distribution Amp
- HKPF-SP021 Optical to Electrical Converter
- HKPF-SP022 Electrical to Optical Converter
- HKSP-008HD HD Frame/Line Synchronizer
- HKSP-061M 8 x 4 Digital Video Selector
- HKSP-105 HD Audio/Video Multiplexer Board
- HKSP-106 HD Audio/Video Demultiplexer Board
- HKSP-1125 HD Up-converter Board
- HKSP-300 Processing Module Controller
- HKSP-313 HD Color Corrector Board
- HKSP-525 Down Converter Board
- HKSP-R80 Routing Switcher Controller
- HKSP-R81 Routing Switcher Backup CPU
- UCP-8060 Universal Control Panel

Optional Peripherals

- HK-PSU03 Backup Power Supply Unit

Specifications

Inputs/outputs

- Remote:
 - S-BUS remote connector (BNC type) (1)
- SYNC inputs:
 - HD tri-level sync or black burst signal (BNC type) (2) (with loop-through outputs)
- Status output:
 - STATUS OUT (mini D-sub 15-pin, female) (1)

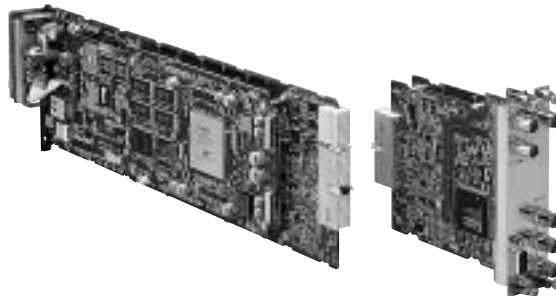
General

- Power requirements:
 - 100 to 240 V AC, 50/60 Hz
- Current drain
 - 100 V AC: Max 3.5 A, 240 V AC: Max 1.5 A
- Power supply capacity:
 - +12 V DC: Max 18.7 A
- Operating temperature:
 - 5 to 40 °C (41 to 104 °F)
- Storage temperature:
 - 20 to 60 °C (-4 to 140 °F)
- Operating humidity:
 - 10 to 90% (no condensation)
- Dimensions (W x H x D):
 - 440 x 550 x 132.4 mm
 - (5 1/4 x 21 3/4 x 17 3/8 inches)
- Mass:
 - Approx. 10 kg (22 lb 1 oz) (Not including optional boards)

Service part: Maintenance manual

HKSP-008HD HD Frame/Line Synchronizer

The HKSP-008HD frame/line synchronizer board synchronizes the input HDTV video signal to an external reference. One equalized input, three distribution outputs and one black burst or tri-level sync reference input with passive loop-through output are provided. Three types of operation mode are selectable. When an error in the input signal is detected, a variety of freeze functions are available.



Features

- *HD frame/line synchronizer with three modes of operation — Frame Synchronization mode; Line Synchronization mode; Delay Line mode
- *Supports a wide range of video standards — 1080/60i, 59.94i, 50i; 1035/60i, 59.94i; 1080/30P, 29.97P, 25P, 24P, 23.976P
- *Freeze function when an error is detected in the input signal — Auto/Manual Freeze selectable; Field/Frame Freeze selectable
- *Passes eight channels of embedded audio and other ancillary data on VBI — Automatically mutes embedded audio when picture frozen; 20-bit audio sample rate conversion in Frame Synchronization mode; Variable audio delay in Frame Synchronization mode
- *H/V phase adjustment available in Frame Synchronization mode
- *By-pass mode selectable
- *Built-in test Signal Generator
- *Local and remote status monitoring and set up
- *Remotely controllable from an optional HKDV-503/900 Digital Video Controller via a RS-422 (GPI also provided) or UCP-8060 Universal Control Panel (Ethernet 100BASE-TX)

The HKPF-SP/HKSP function boards install in PFV-SP Series Signal Processing Units in any combination with other HKPF-SP/HKSP function boards.

Applicable Models

- PFV-SP3100 Signal Processing Unit
- PFV-SP3300 Signal Processing Unit

Supplied Accessories

- Installation manual (1)
- Installation guide (1)



Front Panel



Rear Panel

Interface Processor SP Series

Specifications

Inputs/outputs

Video standard:

1035/60, 59.94i

1080/60, 59.94i, 50i

1080/30PsF, 29.97PsF, 25PsF, 24PsF,

23.976PsF

HD component serial digital signal (HD

SDI):

Conforming to SMPTE-292M

1.485/1001, 1.485 Gb/s

Serial digital video input:

SDI IN connector (BNC type) (1)

Reference input:

REF IN connector (BNC type) (1)

0.43 Vp-p $\pm 10\%$, 75 Ω

Black Burst or Tri-level sync signal

Serial digital video outputs:

SDI OUT connector (BNC type) (3)

0.8 Vp-p $\pm 10\%$, 75 Ω

Reference output:

Passive loop-through output connector

(BNC type) (1)

GPI:

REMOTE connector (Mini D-sub 15-pin)

(1)

General

Power requirements:

+12 V DC: 1.7 A

(Supplied from PFV-SP Series Signal Processing Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 60 °C (-4 to 140 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x W):

112.2 x 388.3 mm

(4 1/2 x 15 3/8 inches)

Connector Panel (H x D x W):

130 x 152.5 x 38 mm

(5 1/8 x 6 1/8 x 3/4 inches)

Mass

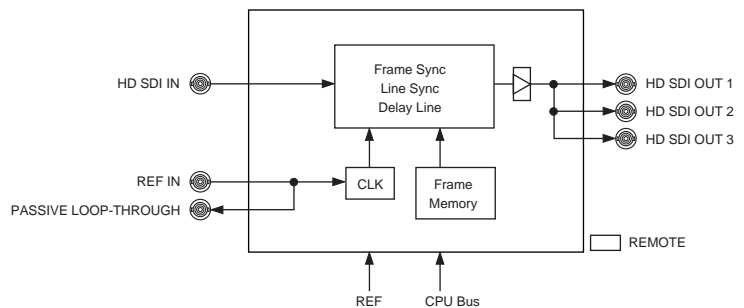
Board:

Approx. 680 g (1 lb 8 oz)

Connector Panel:

Approx. 300 g (11 oz)

Service part: Maintenance manual



HKSP-061M 8 x 4 Digital Video Selector

The HKSP-061M digital video selector board features 8 inputs x 4 outputs and can route serial digital signals at up to 1.5 Gb/s without any setting changes. A variety of matrix configurations are available.

Features

- * Multi bit-rate transmission; Auto bit-rate detection, SD SDI signals at 143, 177, 270, 360 and 540 Mb/s, HD SDI signal at 1.5 Gb/s
- *Auto re-clocking function; Reduces output signal jitter, Automatic switching with bit rate of input signal, Re-clocking on/off switchable
- *Auto cable equalization of up to 100 m of coaxial cable
- *Excellent configuration flexibility for a wide range of applications; One 8 x 4 matrix or one 8 x 2 matrix and two distribution outputs, Two 4 x 2 matrices or two 4 x 1 matrices and two distribution outputs, Four 2 x 1 matrices, Expandable to 16 x 8 by cascade connecting two units
- *Powerful matrix control function via Sony S-BUS remote interface; S-BUS connections with BKS-R Series control panels to form a simple primary station for signal switching
- *Synchronized switching with external reference signal; Provides both black burst and tri-level sync signal
- *Retains crosspoint data to restore setting after power-off
- *Remote status monitoring, plus local monitoring with front panel LED

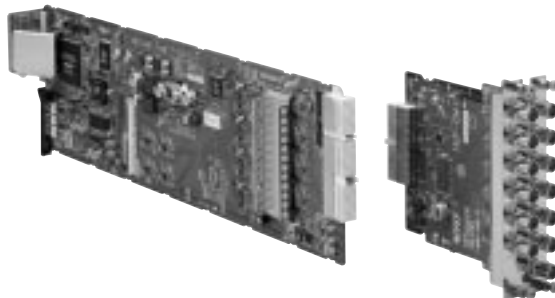
The HKPF-SP/HKSP function boards install in PFV-SP Series Signal Processing Units in any combination with other HKPF-SP/HKSP function boards.

Applicable Models

- PFV-SP3100 Signal Processing Unit
- PFV-SP3300 Signal Processing Unit

Supplied Accessories

- Install guide (1)
- Install manual (1)
- Expansion harness (1)



Front Panel



Rear Panel

Interface Processor SP Series

Specifications

- Inputs/outputs -

Serial digital video input:

SDI in connectors (BNC type) (8)

Data transfer rates:

143 Mb/s to 1.485 Gb/s

Input signal:

Scrambled NRZI, 0.8 Vp-p

Input impedance:

75 Ω , unbalanced

Input return loss:

15 dB or more (5 MHz to 1.485 GHz)

Cable length:

100 m max. (When using a 5C-FB cable (Fujikura) or Belden 1694 coaxial cable or the equivalent is used)

Reference inputs:

Supplied through the REF IN connectors on the PFV-SP Series signal processing units

REF IN connectors (BNC type) (2)

Black Burst or Tri-level sync signal

Serial digital video output:

SDI out connectors (BNC type) (4)

Data transfer rates:

143 Mb/s to 1.485 Gb/s

Re-clock bit rates:

143, 177, 270, 360, 540 Mb/s:

1.485/1.001, 1.485 Gb/s

Output amplitude:

0.8 Vp-p \pm 10%

Rise/fall time:

270 ps or less

Output return loss:

15 dB or more (5 MHz to 1.485 GHz)

Remote:

S-BUS (BNC type) (1)

Data transfer rates:

312.5 kb/s

- General -

Power requirements:

+12 V DC: 2.0 A

Operating temperature:

5 to 40 $^{\circ}$ C (41 to +104 $^{\circ}$ F)

Storage temperature:

-20 to 60 $^{\circ}$ C (-4 to 104 $^{\circ}$ C)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x W):

112.2 x 388.3 mm

(4 1/2 x 15 3/8 inches)

Connector panel (W x H x D):

130 x 152.5 x 38 mm

(5 1/8 x 6 1/8 x 1 1/2 inches)

Mass

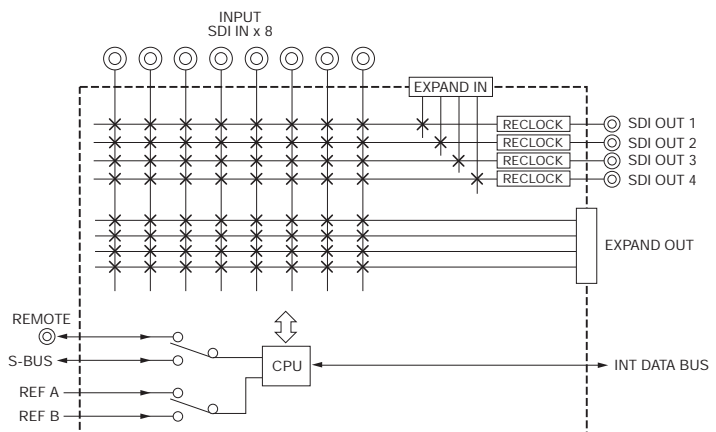
Board:

Approx. 450 g (16 oz)

Connector panel:

Approx. 300 g (11 oz)

Service part: Maintenance manual



HKSP-105 HD Audio/Video Multiplexer Board

The HKSP-105 is a video/audio multiplexer board that multiplexes four AES/EBU format digital audio signals (8 channels) with an HD SDI video signal. Two outputs of the multiplexed signal are provided. By cascading two HKSP-105 boards, a further four AES/EBU signals can be multiplexed onto one HD SDI signal, making a total of eight pairs/sixteen channels.

Features

- *Multiplexes four AES/EBU signals with an HD SDI signal
- *Audio delay adjustable (maximum two video frames)
- *Auto selection of HD multi-format
- *Remotely controllable from an optional UCP-8060 Universal Control Panel (Ethernet 100BASE-TX)
- *Masks and retains of HANC area and embedded audio data
- *Transfers UMID and VITC data
- *Provides simplified Signal Generator
- *External reference input (PFV-SP Series Signal Processing Unit)

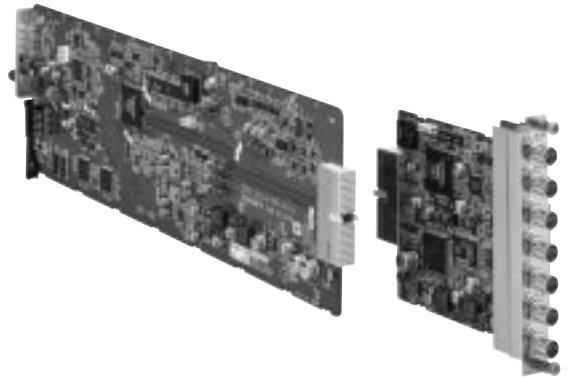
The HKPF-SP/HKSP function boards install in PFV-SP Series Signal Processing Units in any combination with other HKPF-SP/HKSP function boards.

Applicable Models

- PFV-SP3100 Signal Processing Unit
- PFV-SP3300 Signal Processing Unit

Supplied Accessories

- Operation manual (1)
- Installation manual (1)
- Slot number label (1)



Front Panel



Rear Panel

Interface Processor SP Series

Specifications

Inputs/outputs

Digital video signal input:

HD SDI IN connector (BNC type) (1)
HD serial digital signal conforming to SMPTE291M/292M/299M, 1.4835 or 1.485 Gb/s

Input impedance:

75 Ω , unbalanced

Input return loss:

15 dB or more (5 MHz to 1.485 GHz)

Transmission loss:

20 dB or less (at 742.5 MHz)

Cable length:

100 m max. (When using a 5C-FB coaxial cable or PD-3079 COOPER RG-6/U type Super Low Loss Digital Video Coax or equivalents)

Reference inputs:

Supplied through the REF IN connectors on the PFV-SP Series signal processing units

REF IN connectors (BNC type) (2)

Black Burst or Tri-level sync signal

Digital audio signal inputs:

DIGITAL IN AUDIO connectors (BNC type) (4)

AES3-format digital audio signal

Input impedance:

75 Ω , unbalanced

Input return loss:

25 dB or more

Input level:

1.1 to 0.1 Vp-p

Digital signal outputs:

HD SDI OUT connectors (BNC type) (2)

HD serial digital signal conforming to SMPTE291M/292M/299M, 1.4835 or 1.485 Gb/s

Output level:

800 m Vp-p \pm 10% (at 75 Ω)

Output impedance:

75 Ω , unbalanced

Output return loss:

15 dB or more (5 MHz to 1.485 GHz)

Rise/fall time:

Less than 270 ps

Alignment jitter:

Within 135 ps

Digital input/output system delay

Video:

Less than 1.4 μ s

General

Power requirements:

+12 V DC: less than 1.0 A

Power consumption:

Approx. 12 W

Operating temperature:

5 to 40 $^{\circ}$ C (41 to 104 $^{\circ}$ F)

Storage temperature:

-20 to 55 $^{\circ}$ C (-4 to 131 $^{\circ}$ F)

Operating humidity:

10 to 90 % (without condensation)

Dimensions:

Board (H x W):

112.2 x 388.3 mm

(4 1/2 x 15 3/8 inches)

Connector panel (H x D x W):

130 x 152.5 x 19 mm

(5 1/8 x 6 1/8 x 25/35 inches)

Mass

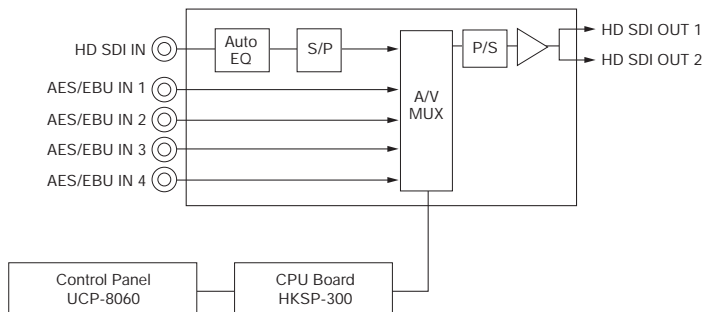
Board:

Approx 400 g (14 oz)

Connector panel:

Approx. 220 g (8 oz)

Service parts: Extension boards (EX-834; Part No. A-8327-357-A and EX-833; Part No. A-8327-356-A), Maintenance manual



Interface Processor SP Series

HKSP-106 HD Audio/Video Demultiplexer Board

The HKSP-106 is a video/audio de-multiplexer board that de-multiplexes four AES/EBU-format digital audio signals from a multiplexed HD SDI signal. The HD SDI input signal is distributed to two outputs. Up to eight pairs/sixteen channels of audio can be separated from a multiplexed HD SDI signal by connecting two HKSP-106 boards in cascade.

Features

- *De-multiplexes eight channel audio signals from an HD SDI signal and outputs four AES/EBU digital audio signals
- *Audio delay adjustable (maximum two video frames)
- *Remotely controllable from an optional UCP-8060 universal control panel (Ethernet 100BASE-TX)
- *Transfers UMID and VITC data
- *Provides simplified Signal Generator
- *External reference input (PFV-SP Series Signal Processing Unit)

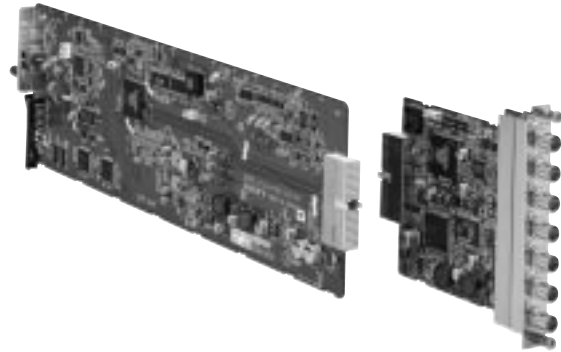
The HKPF-SP/HKSP function boards install in PFV-SP Series Signal Processing Units in any combination with other HKPF-SP/HKSP function boards.

Applicable Models

- PFV-SP3100 Signal Processing Unit
- PFV-SP3300 Signal Processing Unit

Supplied Accessories

- Operation manual (1)
- Installation manual (1)
- Slot number label (1)



Front Panel



Rear Panel

Interface Processor SP Series

Interface Processor SP Series

Specifications

Inputs/outputs

Digital video signal input:

HD SDI IN connector (BNC type) (1)
HD serial digital signal conforming to SMPTE291M/292M/299M, 1.4835 or 1.485 Gb/s

Input impedance:

75 Ω , unbalanced

Input return loss:

15 dB or more (5 MHz to 1.485 GHz)

Transmission loss:

20 dB or less (at 742.5 MHz)

Cable length:

100 m max. (When using a 5C-FB coaxial cable or PD-3079 COOPER RG-6/U type Super Low Loss Digital Video Coax or equivalents)

Reference inputs:

Supplied through the REF IN connectors on the PFV-SP Series signal processing units

REF IN connectors (BNC type) (2)

Black Burst or Tri-level sync signal

Digital signal outputs:

HD SDI OUT connectors (BNC type) (2)

HD serial digital signal conforming to SMPTE291M/292M/299M, 1.4835 or 1.485 Gb/s

Output level:

800 m Vp-p \pm 10% (at 75 Ω)

Output impedance:

75 Ω , unbalanced

Output return loss:

15 dB or more (5 MHz to 1.485 GHz)

Rise/fall time:

Less than 270 ps

Alignment jitter:

Within 135 ps

Digital audio signal outputs:

DIGITAL AUDIO OUT connectors (BNC type) (4)

AES3 digital audio signal

Output impedance:

75 Ω , unbalanced

Output level:

1.0 Vp-p \pm 10%

Digital input/output system delay

Video:

Less than 1.4 μ s

General

Power requirements:

+12 V DC: less than 1.0 A

Power consumption:

Max. 12 W

Operating temperature:

5 to 40 $^{\circ}$ C (41 to 104 $^{\circ}$ F)

Storage temperature:

-20 to 55 $^{\circ}$ C (-4 to 131 $^{\circ}$ F)

Operating humidity:

10 to 90 % (without condensation)

Dimensions:

Board (H x W):

112.2 x 388.3 mm

(4 1/2 x 15 3/8 inches)

Connector panel (H x D x W):

130 x 152.5 x 19 mm

(5 1/8 x 6 1/8 x 25/35 inches)

Mass

Board:

Approx 400 g (14 oz)

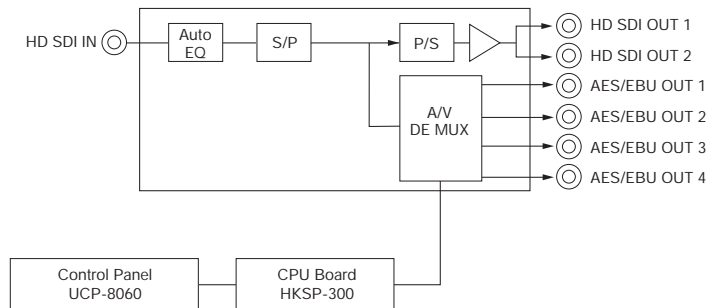
Connector panel:

Approx. 220 g (8 oz)

Service parts: Extension boards (EX-834; Part No.

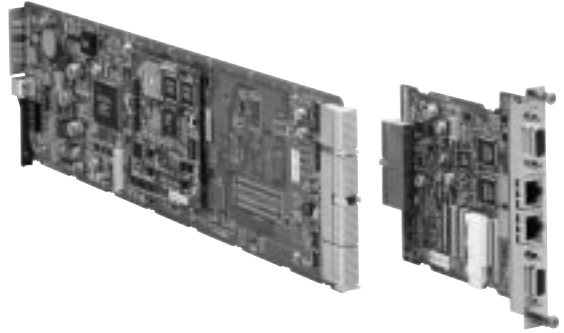
A-8327-357-A and EX-833; Part No.

A-8327-356-A), Maintenance manual



HKSP-300 Processing Module Controller

With an HKSP-300 processing module controller installed, the function boards accommodated within the same PFV-SP Series processing units can be controlled from a UCP-8060 universal control panel over an Ethernet-based network. A redundant CPU is available by installing two HKSP-300 boards. The newly developed set-up data backup function retains the settings of the function boards when they have been exchanged. Set-up for networking can be carried out through a connected PC.



Features

*Networking applications; Enables the setting, control, and up/downloading of the set-up data of other HKSP function boards in a PFV-SP Series signal processing unit when used in combination with a UCP-8060 universal control panel connected via a Ethernet 100BASE-TX based network, Interactively up/downloads set-up data via a Sony System Manager, Multiple control panels can operate with multiple processors *Redundant CPU available by installing two HKSP-300 boards *Auto backup function for set-up data; Periodically backs up the set-up data of function boards and restores to any exchanged boards *Eight inputs and four outputs of GPI interface

The HKPF-SP/HKSP function boards install in PFV-SP Series Signal Processing Units in any combination with other HKPF-SP/HKSP function boards.



Front Panel

Rear Panel

Applicable Models

- PFV-SP3100 Signal Processing Unit
- PFV-SP3300 Signal Processing Unit

Supplied Accessories

- Installation guide (1)
- Installation manual (1)
- 3.5 inches floppy disk (1)

Specifications

- Inputs/outputs -

Reference inputs :

- Supplied through the REF IN connectors on the PFV-SP Series signal processing units
- REF IN connectors (BNC type) (2)
- Black Burst or Tri-level sync signal

Remote

- CONTROL LAN: RJ-45 (1), Ethernet 100Base-TX
- DATA LAN: RJ-45 (1), Ethernet 100Base-TX/10Base-T
- RS-422: D-sub 9-pin (1)
- GPI: Mini D-sub 15-pin (1)

- General -

- Power requirements: +12 V DC: 0.8 A
- Operating temperature: 5 to 40 °C (41 to 104 °F)
- Storage temperature: -20 to 60 °C (-4 to 104 °C)

Operating humidity:

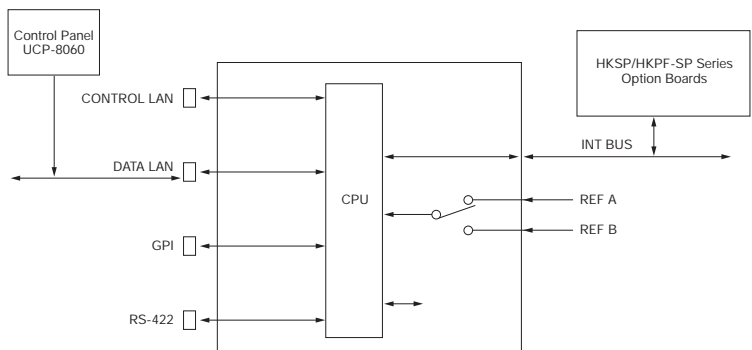
10 to 90% (no condensation)

Dimensions

- Board (H x W): 112.2 x 388.3 mm (4 1/2 x 15 3/8 inches)
- Connector panel (W x H x D): 130 x 152.5 x 19 mm (5 1/8 x 6 1/8 x 25/32 inches)

Mass

- Board: Approx. 350 g (12 oz)
- Connector panel: Approx. 130 g (5 oz)



HKSP-525 Down Converter Board

The HKSP-525 down converter board converts an HD SDI signal to an SD SDI signal. It accepts an HD SDI input with embedded audio, and provides three SD SDI outputs (525/625) with embedded audio, plus an analog monitor output.

Features

*Down converts an HD SDI signal to an SD SDI (D1) signal; From 1035(1125) / 59.94i, 29.97PsF to 480(525) / 59.94i, 29.97PsF, From 1080(1125) / 59.94i, 29.97PsF to 480(525), / 59.94i, 29.97PsF, From 1080(1125) / 50i, 25PsF to 576(625) / 50i, 25PsF *Provides an analog composite monitor output *Handles eight embedded audio channels *Retains ancillary data (VITC) and UMID that are on an HD SDI input to an SD SDI output *Output signal aspect ratio modes selectable from Squeeze, Edge Crop, Letter Box (16:9) and Semi Letter Box (13:9, 14:9, 15:9) *Minimum delay/frame delay selectable *Remotely controllable from an optional HKDV-503/900 digital video controller via a RS-422 (GPI also provided) or UCP-8060 universal control panel (Ethernet 100BASE-TX) *Auto colorimetry selection between 1035 and 1080 active lines

The HKPF-SP/HKSP function boards install in PFV-SP Series Signal Processing Units in any combination with other HKPF-SP/HKSP function boards.

Applicable Models

PFV-SP3100 Signal Processing Unit

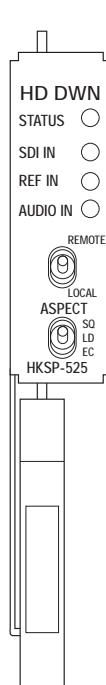
PFV-SP3300 Signal Processing Unit

Supplied Accessories

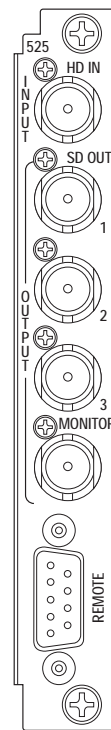
Operation manual (1)

Installation manual (1)

Slot number label (1)



(Tentative)
Front Panel



(Tentative)
Rear Panel

Interface Processor SP Series

Specifications

Inputs/outputs

Digital video signal input:

HD SDI IN connector (BNC type) (1)
HD serial digital video signal
conforming to SMPTE291M/292M/299M
Input impedance:

75 Ω , unbalanced

Input return loss:

15 dB or more (5 M to 1.5 GHz)

Transmission loss:

Less than 20 dB

Cable length:

100 m max. (when using a 5C-FB
coaxial cable)

Data rate:

1.4835 or 1.485 Gb/s

Reference inputs:

Supplied through the REF IN
connectors on the PFV-SP Series signal
processing units
REF IN connectors (BNC type) (2),
Black Burst

Digital video outputs:

D1 SDI OUT 1, 2, 3 (BNC type) (1 each)
525/625 component serial digital video
signal conforming to SMPTE259M

Output impedance:

75 Ω , unbalanced

Amplitude:

800 mVp-p \pm 10%

Output return loss:

15 dB or more (5 M to 270 MHz)

Cable length:

200 m max. (when using a 5C-2B
coaxial cable)

Data rate:

270 Mb/s

Analog video output:

Monitor output connector (BNC type) (1)
NTSC/PAL composite video signal

Output impedance:

75 Ω , unbalanced

Amplitude:

1.0 Vp-p

System delay:

90 H/1 video frames selectable

General

Power supply:

+12 V DC: 1.0 A

Power consumption:

Approx. 12W

Operating temperature:

5 to 40 $^{\circ}$ C (41 to 104 $^{\circ}$ F)

Storage temperature:

-20 to 60 $^{\circ}$ C (-4 to 140 $^{\circ}$ F)

Operating humidity:

10 to 90%

Dimensions:

Board (H x W):

112.2 x 388.3 mm

(4 1/2 x 15 3/8 inches)

Connector panel (H x D x W):

130 x 152.5 x 19 mm

(5 1/8 x 6 1/8 x 25/35 inches)

Mass:

Board:

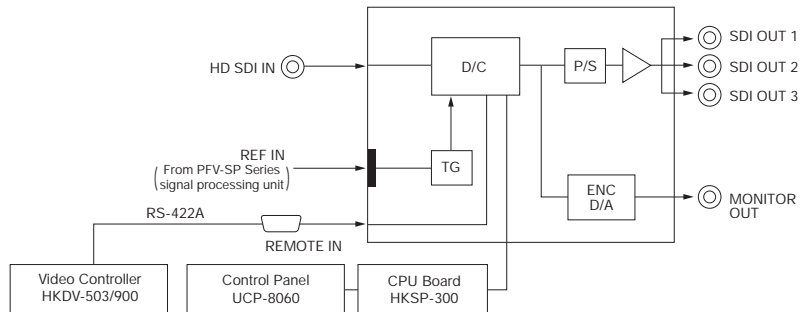
Approx.

1500 g (3 lb 5 oz)

Connector panel:

Approx. 500 g (1 lb 2 oz)

Service parts: Extension boards (EX-834; Part No.
A-8327-357-A and EX-833; Part No.
A-8327-356-A), Maintenance manual



HKSP-313 HD Color Corrector Board

The HKSP-313 color corrector board provides control of various color control parameters for different types of signal and complies with multiple HD formats. It also provides line conversion between 1035 and 1080, and format conversion between 1080 and 720P.

Features

- *HD signal color correction control; Master / Y, Pb, Pr / R, G, B / Video Gain, Chroma Gain, Hue, Set up / Gamma / White/Black Clip, Support for SMPTE292M formats: 1035/60i, 59.94i, 1080/60i, 59.94i, 50i, 1080/30PsF, 29.976PsF, 25PsF, 24PsF, 23.976PsF, 720/60P, 59.94P
- *Enhancer control *Active line conversions between 1035 and 1080 *Format conversion between 1080 and 720P
- *Audio delay function; Maximum two audio frames *HD SDI active loop-through output *Retains ancillary data and embedded audio data *Transfers UMID and VITC data *Built-in Signal Generator *System delay available; With format conversion: 1 frame, Without format conversion: in steps of μ s or 3H *Remotely controllable from an optional HKDV-503/900 digital video controller via RS-422 (GPI also provided) or UCP-8060 universal control panel (Ethernet 100BASE-TX) *Up to eight HKSP-313 boards can be installed in a PFV-SP3300 signal processing unit

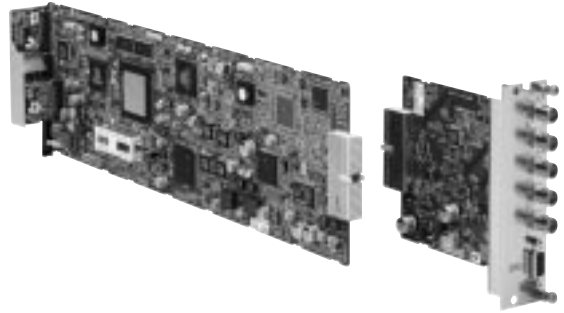
The HKPF-SP/HKSP function boards install in PFV-SP Series Signal Processing Units in any combination with other HKPF-SP/HKSP function boards.

Applicable Models

- PFV-SP3100 Signal Processing Unit
- PFV-SP3300 Signal Processing Unit

Supplied Accessories

- Operation manual (1)
- Installation manual (1)
- Slot number label (1)



Front Panel



Rear Panel

Interface Processor SP Series

Specifications

Inputs/outputs

Digital video signal input:

HD SDI IN connector (BNC type) (1)
 HD component serial digital signal conforming to SMPTE291M/292M/299M, 1.4835 or 1.485 Gb/s

Input impedance:
 75 Ω , unbalanced

Input return loss:
 15 dB or more (5 MHz to 1.485 GHz)

Transmission loss:
 20 dB or less (at 742.5 MHz)

Cable length:
 100 m max. (when using a 5C-FB coaxial cable or PD-3079 COOPER RG-6/U type Super Low Loss Digital Video Coax or equivalents)

HD SDI ACTIVE THROUGH OUT connector (BNC type) (1)

Output level:
 800 m Vp-p \pm 10% (at 75 Ω)

Output impedance:
 75 Ω , unbalanced

Output return loss:
 15 dB or more (5 MHz to 1.485 GHz)

Reference inputs:

Supplied through the REF IN connectors on the PFV-SP Series signal processing units

REF IN connectors (BNC type) (2)
 Black Burst or Tri-level sync signal

Digital signal outputs:

HD SDI OUT connectors (BNC type) (3)
 HD serial digital signal conforming to SMPTE291M/292M/299M, 1.4835 or 1.485 Gb/s

Output level:
 800 m Vp-p \pm 10% (at 75 Ω)

Output impedance:
 75 Ω , unbalanced

Output return loss:
 15 dB or more (5 MHz to 1.485 GHz)

Rise/fall time:
 Less than 270 ps

Alignment jitter:
 Within 135 ps

Digital input/output system delay

Video:
 1 frame/3H/L.T.10 μ

General

Power requirements:
 +12 V DC: less than 1.5 A

Power consumption:
 Max. 18 W

Operating temperature:
 5 to 40 $^{\circ}$ C (41 to 104 $^{\circ}$ F)

Storage temperature:
 -20 to 55 $^{\circ}$ C (-4 to 131 $^{\circ}$ F)

Operating humidity:
 10 to 90 % (without condensation)

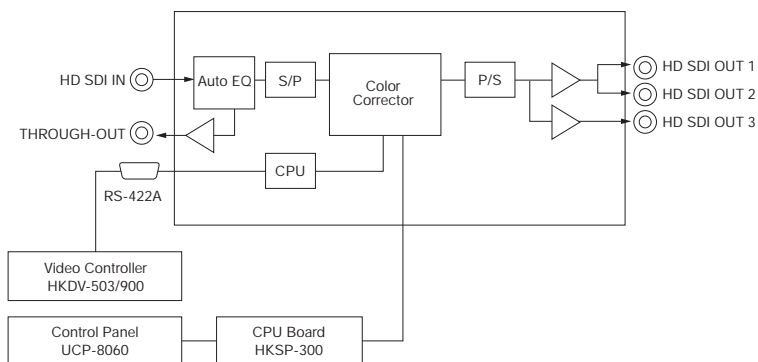
Dimensions

Board (H x W):
 112.2 x 388.3 mm
 (4 1/2 x 15 3/8 inches)
 Connector panel (H x D x W):
 130 mm x 152.5 x 38 mm
 (5 1/8 x 6 1/8 x 1 1/2 inches)

Mass

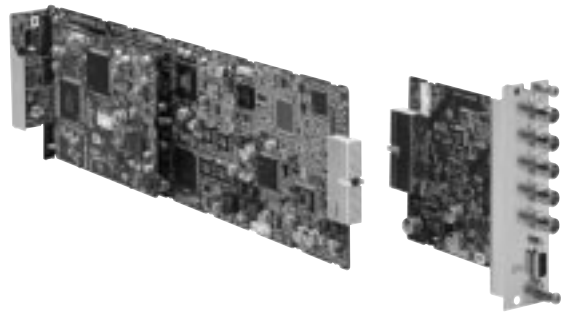
Board:
 Approx 500 g (1 lb 2 oz)
 Connector panel:
 Approx. 200 g (7 oz)

Service parts: Extension boards (EX-834; Part No. A-8327-357-A and EX-833; Part No. A-8327-356-A), Maintenance manual



HKSP-1125 HD Up-converter Board

The HKSP-1125 is a 525-line or a 625-line to 1125i or 720P up-converter with an auto colorimetry selection capability and selectable output modes. The HKSP-1125 accepts inputs in conventional NTSC composite analog or NTSC composite serial digital or 525/625 component serial digital signal format, and provides three HD serial digital outputs to the 1125i or 720P interlaced HDTV standard. The 1125 output can be in the 1035 or 1080 active line format.



Features

- *Up-converts a 625 component serial digital, a 525 component or NTSC composite serial digital, or an NTSC composite analog video signal to the 1125/59i, 1125/50i or 720/59P HDTV standard
- *525/625 Black Burst or 1125 tri-level Sync input
- *Three distribution outputs of HD SDI with embedded audio
- *1035 or 1080 active lines output switchable
- *Remotely controllable from an optional HKDV-503/900 Digital Video Controller via a RS-422 (GPI also provided) or UCP-8060 Universal Control Panel (Ethernet 100BASE-TX)
- *Provides color matt
- *Auto colorimetry selection between 1035 and 1080 active lines
- *Aspect ratio modes selectable from Squeeze, Letter Box and Edge Crop
- *Provides frame synchronizer
- *Motion adaptive and non-adaptive conversion modes selectable from Frame/Field adaptive, Field fixed and Frame fixed
- *Color Corrector function control
- *Anti Image Enhancer control
- *Gamma Correction control
- *Up to eight HKSP-1125 boards can be installed in a PFV-SP Series Signal Processing Unit

The HKPF-SP/HKSP function boards install in PFV-SP Series Signal Processing Units in any combination with other HKPF-SP/HKSP function boards.

Applicable Models

- PFV-SP3100 Signal Processing Unit
- PFV-SP3300 Signal Processing Unit

Supplied Accessories

- Operation manual (1)
- Installation manual (1)
- Slot number label (1)



Front Panel



Rear Panel

Interface Processor SP Series

Specifications

Inputs/outputs

Digital signal input:

SDI IN connector (BNC type) (1),
NTSC composite or 525/625 component
serial digital signal with embedded
audio conforming to SMPTE259M-A/C
(ITU-R BT.601/BT.656), 270 Mb/s, 143
Mb/s, 75 Ω , unbalanced

Input impedance:

75 Ω , unbalanced

Input return loss:

15 dB or more (5 MHz to 270 MHz)

Cable length:

More than 200 m (when using
Belden 8281, Fujikura 5C2V or
equivalent coaxial cable)

Analog signal input:

ANALOG VIDEO IN connector (BNC
type) (1).

Video level:

1.0 Vp-p

Input impedance:

75 Ω , unbalanced

Reference inputs :

Supplied through the REF IN
connectors on the PFV-SP Series signal
processing units

REF IN connectors (BNC type) (2)

Black Burst or Tri-level sync signal

Digital signal outputs:

HD SDI OUT connectors (BNC type) (3)

HD component serial digital signal
conforming to SMPTE291M/292M/299M,
1.4835 or 1.485 Gb/s

Output level:

800 m Vp-p $\pm 10\%$ (at 75 Ω)

Output impedance:

75 Ω , unbalanced

Output return loss:

15 dB or more (5 MHz to 1.485 GHz)

Rise/fall time:

Less than 270 ps

Alignment jitter:

Within 135 ps

Digital input/output system delay

Video:

1 frame

0.6 to 1.6 frames (frame synchronizer)

General

Power requirement

12VDC; Less Than 1.8A

Power consumption

Max; 21.6W

Operating temperature:

5 °to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 60 °C (-4 to 140 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x W):

112.2 x 388.3 mm

(4 1/2 x 15 3/8 inches)

Connector panel (H x D x W):

130 x 152.5 x 38 mm

(5 1/8 x 6 1/8 x 1 1/2 inches)

Mass

Board:

Approx 600 g (1 lb 2 oz)

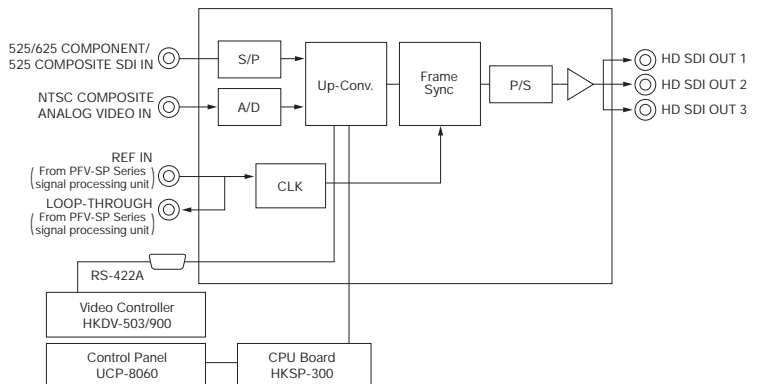
Connector panel:

Approx. 200 g (7 oz)

Service parts: Extension boards (EX-834; Part No.

A-8327-357-A and EX-833; Part No.

A-8327-356-A), Maintenance manual



HKPF-SP003 Digital Video Distribution Amp

The HKPF-SP003 distributes a multi-bit rate signal from 143 Mb/s to 1.5 Gb/s to six outputs. The input signal is re-clocked before distribution.

Features

- *Distribution of an SD or HD SDI signal
- *Re-clocking at 143 Mb/s, 177 Mb/s, 270 Mb/s, 360 Mb/s, 540 Mb/s, 1.5 Gb/s
- *Six distribution outputs
- *Auto bit rate detection
- *Auto cable equalization of up to 100 m (at 1.5 Gb/s)

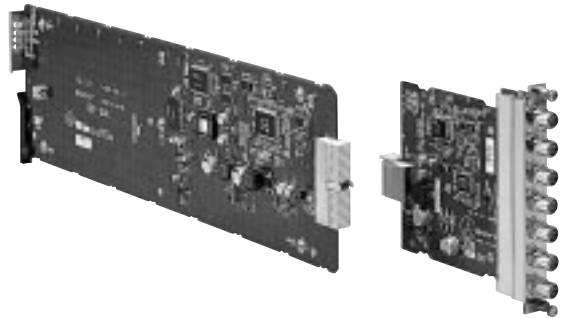
The HKPF-SP/HKSP function boards install in PFV-SP Series Signal Processing Units in any combination with other HKPF-SP/HKSP function boards.

Applicable Models

- PFV-SP3100 Signal Processing Unit
- PFV-SP3300 Signal Processing Unit

Supplied Accessories

- Installation Guide (1)
- Installation Manual (1)



Front Panel



Rear Panel

Interface Processor SP Series

Specifications

Inputs/outputs

Serial digital input:

SDI IN connector (BNC type) (1)

Data transfer rate:

143 Mb/s to 1.485 Gb/s

Input signal:

Scramble NRZI signal, 0.8 V p-p

Input return loss:

15 dB or more (5 MHz to 1.485 GHz)

Cable length:

100 m (when a 5C-FB cable (Fujikura)
or Belden1694 coaxial cable or the
equivalent is used)

Serial digital output:

SDI OUT connector (BNC type) (1)

Data transfer rate:

143 Mb/s to 1.485 Gb/s

Re-clocking:

143 Mb/s, 177 Mb/s, 270 Mb/s, 360
Mb/s, 540 Mb/s, 1.485/1.001 Gb/s,
1.485 Gb/s

Output amplitude:

0.8 Vp-p \pm 10%

Rise/fall time:

270 ps or less

Output return loss:

15 dB or more (5 MHz to 1.485 GHz)

General

Power Requirements:

+12 V dc: 0.42 A

(supplied from a PFV-SP Series Signal
Processing Unit)

Operation temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 60 °C (-4 to 140 °F)

Operating humidity:

10 to 90% (No condensation)

Dimensions

Board (H x W):

112.2 x 388.3 mm

(4 1/2 x 15 3/8 inches)

Connector Panel (H x D x W):

130 x 152.5 x 19 mm

(5 1/8 x 6 1/8 x 3/4 inches)

Mass

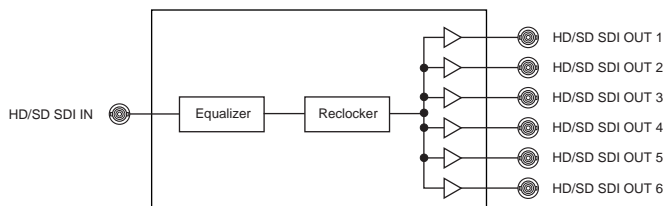
Board:

Approx. 200 g (7 oz)

Connector Panel:

Approx. 155 g (5 oz)

Service parts: Maintenance manual



HKPF-SP021 Optical to Electrical Converter

The HKPF-SP021 is an optical to electrical signal converter with an operational frequency range of 143 Mb/s to 1.5 Gb/s. In combination with the HKPF-SP022 electrical to optical converter board, it extends the transmission distance over an optical fiber to two km. The HKPF-SP021 has one optical input and provides three electrical digital outputs. The bit rate of the input signal is detected automatically.

Features

- *Used with HKPF-SP022 to extend transmission distance of HD/SD SDI signals up to 2 km
- *Passes pathological signal
- *Three distribution outputs
- *Re-clocking at 143 Mb/s, 177 Mb/s, 270 Mb/s, 360 Mb/s, 540 Mb/s and 1.5 Gb/s.
- *Auto bit rate detection
- *Status indication and output

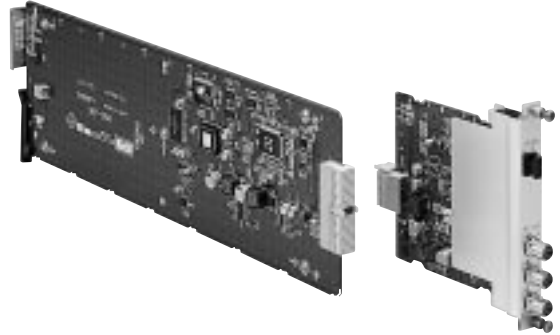
The HKPF-SP/HKSP function boards install in PFV-SP Series Signal Processing Units in any combination with other HKPF-SP/HKSP function boards.

Applicable Models

- PFV-SP3100 Signal Processing Unit
- PFV-SP3300 Signal Processing Unit

Supplied Accessories

- Installation Guide (1)
- Installation Manual (1)



Front Panel



Rear Panel

Interface Processor SP Series

Specifications

Inputs/outputs

OPTICAL IN connector:

SC/PC type (1)

Adaptive plug :

SC/PC type plug (1)

Adaptive cable:

1310 nm single mode optical fiber

Optical device:

Photo diode

Laser wavelength:

1310 nm

Input signal:

Scrambled NRZI

Optical input level:

-14.6 dBm to -4.5 dBm

SDI OUT connectors:

BNC Type (3)

Data transfer rate:

143 Mb/s to 1.485 Gb/s

Output amplitude:

0.8 V p-p $\pm 10\%$

Rise/fall time:

270 ps or less

Output return loss:

15 dB or more (5 MHz to 1.485 GHz)

General

Power requirements:

+ 12 V DC: 0.37 A

(supplied from PFV-SP Series Signal Processing Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 60 °C (-4 to 140 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x W):

112.2 x 388.3 mm

(4 1/2 x 15 3/8 inches)

Connector Panel (H x D x W):

130 x 152.5 x 19 mm

(5 1/8 x 6 1/8 x 3/4 inches)

Mass

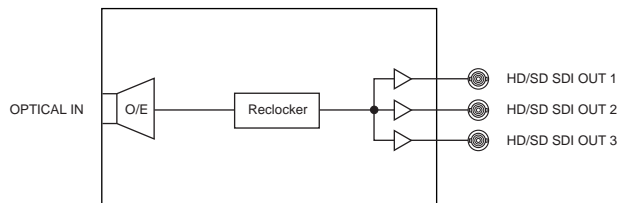
Board:

Approx. 200 g (7 oz)

Connector Panel:

Approx. 130 g (5 oz)

Service parts: Maintenance manual



HKPF-SP022 Electrical to Optical Converter

The HKPF-SP022 converts a variety of serial digital electrical signals to optical signals and re-clocks them at a bit rate from 143 Mb/s to 1.5 Gb/s. In combination with the HKPF-SP021 Optical To Electrical Converter board, it provides a transmission distance over an optical fiber of up to 2 km. The bit rate of the input video signal can be detected automatically. One digital video signal input, one re-clocked electrical digital video signal output and one converted optical signal output connectors are provided.

Features

- *Used with HKPF-SP021 to extend transmission distance of HD/SD SDI signals up to two km
- *Passes pathological signal
- *Re-clocking at 143 Mb/s, 177 Mb/s, 270 Mb/s, 360 Mb/s, 540 Mb/s and 1.5 Gb/s.
- *Auto bit rate detection
- *Status indication and output

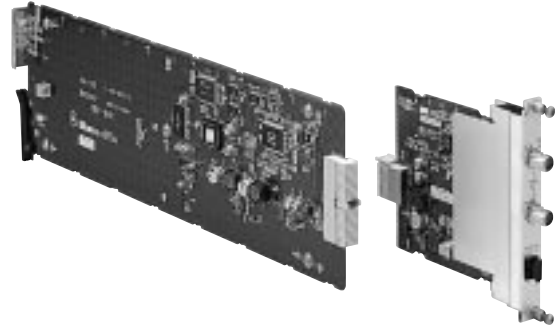
The HKPF-SP/HKSP function boards install in PFV-SP Series Signal Processing Units in any combination with other HKPF-SP/HKSP function boards.

Applicable Models

- PFV-SP3100 Signal Processing Unit
- PFV-SP3300 Signal Processing Unit

Supplied Accessories

- Installation Manual (1)
- Installation Guide (1)



Front Panel



Rear Panel

Interface Processor SP Series

Specifications

Inputs/outputs

SDI IN connector:

BNC type (1)

Data transfer rate:

143 Mb/s to 1.485 Gb/s

Input signal:

Scrambled NRZI, 0.8 V p-p

Input return loss:

15 dB or more (5 MHz to 1.485 GHz)

Input cable length:

100 m (when a 5C-FB cable (Fujikura)
or Belden 1694 coaxial cable or the
equivalent is used)

Active loop-through out:

BNC Type (1)

Data transfer rate:

143 Mb/s to 1.485 Gb/s

Re-clock bit rate:

143 Mb/s, 177 Mb/s, 270 Mb/s, 360
Mb/s, 540 Mb/s, 1.485/1.001 Gb/s,
1.485 Gb/s

Output amplitude:

0.8 Vp-p \pm 10%

Rise/fall time:

270 ps or less

Output return loss:

15 dB or more (5 MHz to 1.485 GHz)

OPTICAL OUT connector:

SC/PC Type (1)

Adaptive plug:

SC/PC Type Plug

Adaptive cable:

1310 nm single mode optical fiber

Optical device:

laser diode

Laser wave length:

1310 nm

Optical output level:

-11 dBm to -7.5 dBm

General

Power Requirements:

+12 V DC: 0.37 A

(supplied from PFV-SP Series Signal
Processing Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 60 °C (-4 to 140 °F)

Dimensions

Board (H x W):

112.2 x 388.3 mm

(4 1/2 x 15 3/8 inches)

Connector Panel (H x D x W):

130 x 152.5 x 19 mm

(5 1/8 x 6 1/8 x 3/4 inches)

Mass

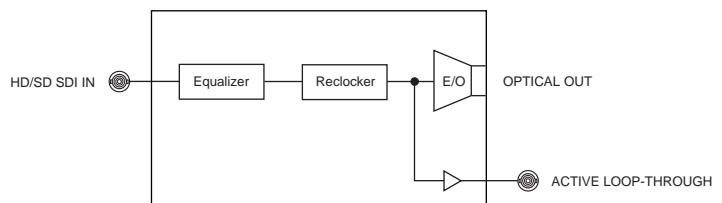
Board:

Approx. 200 g (7 oz)

Connector Panel:

Approx. 130 g (5 oz)

Service parts: Maintenance manual



UCP-8060 Universal Control Panel

The UCP-8060 universal control panel can be used for a wide range of applications where control of PFV-SP Series is required. Its compact size and low-profile design makes the UCP-8060 compatible in almost any system environment. A color touch screen helps to provide quick and positive operation.

Features

*Wide range of applications — Remotely controls the functions and monitors the status of the HKSP-008HD HD frame/line synchronizer board, HKSP-105 audio/video multiplexer board, HKSP-106 audio/video demultiplexer board, HKSP-313 HD color corrector board, HKSP-525 down-converter board and HKSP-1125 HD up-converter board; Sony Memory Stick™ used to store and load set-up data or install software *Compact 3RU height and 2/3 19-inch rack width size — Fits neatly into a control desk; 19-inch rack mountable *Combines touch-screen operation with knob and button operation — Easy-to-use menu system with simplified layers; Shares common operability with MVS-8000 Series production switchers



Applicable Models

PFV-SP3100 Signal Processing Unit
PFV-SP3300 Signal Processing Unit

Note: An HKSP-300 Processing Module Controller board is required.

Supplied Accessories

Operation manual (1)
Installation manual (1)
Rack mount kit (1)

Specifications

Control signal

DATA LAN:

RJ-45 (1), 100BASE-TX

EXT PANEL1:

D-sub 9pin male (1), RS-485

RS-232C (Factory use only):

D-sub 9-pin female (1), RS-232C

General

Power requirements:

85 to 265 V AC, 47 to 63 Hz

Power consumption:

5 V, 15 W

Dimensions (H x D x W):

130 x 75 x 306 mm

(5 1/8 x 3 x 12 1/8 inches)

Mass:

Approx. 1.5kg (3 lb 5 oz)

Service parts: Maintenance manual, AD code

Interface Processor L Series

PFV-L10	70
BKPF-L601C	71
BKPF-L602C	72
BKPF-L603	73
BKPF-L605	75
BKPF-L606	76
BKPF-L608C	77
BKPF-L611	79
BKPF-L612	80
BKPF-L613C	81
BKPF-L632	83
BKPF-L641	84
BKPF-L642	86
BKPF-L653	88
BKPF-L703A	89
BKPF-L704	91
BKPF-L723	92
BKPF-L751	93
BKPF-L752	95
BKPF-L753A	96
BKPF-L754	97
BKPF-L803	98

PFV-L10 Interface unit

The PFV-L10 is a 19-inch rack mountable compact interface unit with an impressive price/performance ratio. Only 2U high, it makes small demands on space in equipment environments. Up to 10 BKPF-L Series function boards can be accommodated in any combination. The controls of these boards are all accessible from the front of the PFV-L10, and all boards can be hot-swapped. An optional redundant power supply unit, the BKPF-LPS10, can be installed in the PFV-L10. This unit is identical to the standard power supply. In the event of a fault in the standard power supply, the BKPF-LPS10 automatically functions, ensuring continuous operation by maintaining power to the installed boards.



Rear Panel

Features

- * Compact design of 2U height
- * Accepts up to 10 digital and analog video/audio function boards in any combination
- * Redundant power supply
- * Hot-swappable boards
- * Status output port for system configuration convenience such as diagnostic system
- * Fan cooled operation
- * Power status LED on the front panel
- * 100 V to 240 V AC operation
- * 19-inch rack mountable

Optional Accessories

RMM-10 Rack Mount Kit

Optional Boards

BKPF-L803 S-BUS Distribution Board
 BKPF-L601C Video A to D Converter Board
 BKPF-L602C Video D to A Converter Board
 BKPF-L603 SDI Distribution Board
 BKPF-L605 Audio/Video Multiplexer Board
 BKPF-L606 Audio/Video Demultiplexer Board
 BKPF-L608C 4:2:2 Frame/Line Synchronizer Board
 BKPF-L611 3-ch SDI Distribution Board
 BKPF-L612 2-ch SDI Distribution Board
 BKPF-L613C Monitoring SDI Distribution Board
 BKPF-L632 Monitoring Composite Encoder Board
 BKPF-L641 NTSC/PAL To 4:2:2 Decoder Board
 BKPF-L642 4:2:2 To NTSC/PAL Encoder Board
 BKPF-L653 AES/EBU Distribution Board
 BKPF-L703A Analog Video Distribution Board
 BKPF-L704 Black Burst Regenerator Board
 BKPF-L723 Video Delay Distribution Board
 BKPF-L751 Audio A to D Converter Board
 BKPF-L752 Audio D to A Converter Board
 BKPF-L753A Analog Audio Distribution Board
 BKPF-L754 Audio Signal Generator Board

Operating temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 60 °C (-4 to 140 °F)

Humidity:

10 to 90% (No condensation)

Dimensions (W x H x D)

440 x 88 x 353.2 mm
 (17 3/8 x 3 1/2 x 14 inches)

Mass:

Approx. 6.2 kg (13 lb 10.7 oz)
 (Excluding backup supply unit)

Status output port:

D-sub 15-pin (1)

Backup power supply:

Available (BKPF-LPS10)

Maximum number of boards installed:

10 BKPF-L Series boards

Service parts: EX-731 Extension Board (Part No. A-8322-598-A), Maintenance Manual

Optional Peripherals

BKPF-LPS10 Backup Power Supply Unit

Specifications

General

Power requirements:

AC 100 to 240 V, 50/60 Hz

Power consumption:

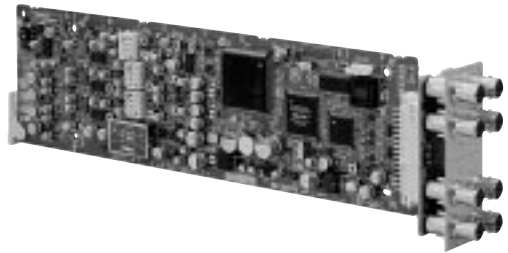
Max. 130 VA

Supply capability:

DC +5 V 13 A max. for the installed boards

BKPF-L601C Video A to D Converter Board

The BKPF-L601C is a high quality yet cost effective A to D converter board which converts a 525 or 625-line component analog video signal to a component serial digital video signal. Y, B-Y, R-Y or RGB signals can be input. Four distribution outputs of the converted signal are provided.



Features

- * Converts a 525/625 component analog video signal to a 525/625 component serial digital video signal
- * 10-bit conversion and signal path
- * 2X oversampling
- * CCIR, Betacam™ with 7.5% or 0% setup or RGB signal inputs
- * Four serial digital distribution outputs
- * Automatic 525/625-line selection
- * EDH insertion

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

EX-731 Extension Board (Part No.A-8322-598-A) (1)

Specifications

Inputs/outputs

Analog inputs:

ANALOG IN Y/G, B-Y/B, R-B19Y/R connectors (BNC type) (1 each)

525/625 component analog video signals or RGB signals (selectable with on-board switch)

RGB signals:

R: 0.7 Vp-p, 75 Ω

G: 0.7 Vp-p, 75 Ω

B: 0.7 Vp-p, 75 Ω

Defined with the color bar signal 100/0/100/0.

YUV (CCIR) signals:

Y: 1.0 Vp-p, 75 Ω (incl. Y sync 300 mV)

B-Y: 0.7 Vp-p, 75 Ω

R-Y: 0.7 Vp-p, 75 Ω

Defined with the color bar signal 100/0/100/0.

YUV (Betacam 7.5% setup) signals:

Y: 1.0 Vp-p, 75 Ω (incl. Y sync 286 mV)

B-Y: 0.7 Vp-p, 75 Ω

R-Y: 0.7 Vp-p, 75 Ω

Defined with the color bar signal 100/7.5/77/7.5.

YUV (Betacam 0% setup) signals:

Y: 1.0 Vp-p, 75 Ω (incl. Y sync 286 mV)

B-Y: 0.756 Vp-p, 75 Ω

R-Y: 0.756 Vp-p, 75 Ω

Defined with the color bar signal 100/0/75/0.

Sync signal input:

SYNC connector (BNC type) (1)

0.28 Vp-p-10%, 75 Ω (black burst)

Serial digital outputs:

SDI OUT connectors (BNC type) (4)

525/625 component serial digital signal conforming to SMPTE259M-C, 0.8

Vp-p±10%, 75 Ω

System delay:

Approx. 3.31 ms

Data transmission

Channel coding:

Scrambled NRZI

Transmission speed:

Output: 270 Mb/s

Amplitude:

0.8 Vp-p-10%

Digital output return loss:

15 dB or more (5 MHz to 270 MHz)

Signal format:

525/625 component serial digital signal conforming to SMPTE259M-C, Serial digital interface

Video characteristics

Sampling frequency:

Y: 13.5 MHz R-B15Y, B-Y: 6.75 MHz

Digitization:

10 bits

Band width:

Y: 5.75 MHz R-Y, B-B83Y: 2.75 MHz

Y, R-Y, B-Y phase error:

20 ns or less

K factor (2T pulse):

1% or less

Signal-to-noise ratio:

60 dB or more

EDH:

Conforms to SMPTE RP165

General

Power requirements:

+5 V DC: 1.2 A
(Supplied from the PFV-L Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)



Rear Panel

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x D):

77 x 267 mm
(3 1/8 x 10 5/8 inches)

Connector panel (W x H):

33 x 85 mm
(1 5/16 x 3 3/8 inches)

Mass

Board:

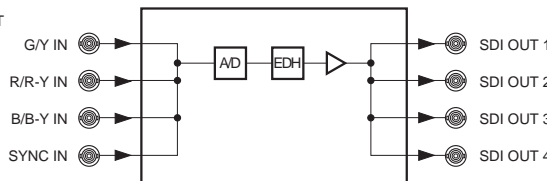
Approx. 140 g (5 oz)

Connector panel:

Approx. 120 g (4 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual

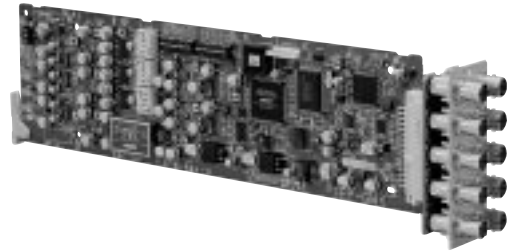
525/625 COMPONENT
ANALOG VIDEO
(R/G/B or Y/R-Y/B-Y)



525/625
COMPONENT
DIGITAL VIDEO

BKPF-L602C Video D to A Converter Board

The BKPF-L602C is a high quality yet cost effective video D to A converter board which converts a 525 or 625-line component serial digital video signal to a component analog video signals. Y, B-Y, R-Y or RGB signals can be selected for outputs. Two distribution outputs of the converted signal are provided.



Features

- * Converts a 525/625 component serial digital signal to a 525/625 component analog signal
- * 10-bit conversion and signal path
- * 525/625 component serial digital input with active-through outputs
- * Two distribution outputs of CCIR, Betacam with 7.5% or 0% setup or RGB signals
- * Two Sync outputs
- * Automatic 525/625-line detection
- * EDH monitoring
- * SDI input presence lamp

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models
PFV-L10 Interface unit

Supplied Accessories
EX-731 Extension Board (Part No.A-8322-598-A) (1)

Specifications

Inputs/outputs

- Serial digital input:**
SDI IN connector (BNC type) (1)
0.8 Vp-p-10%, 75 Ω
4:2:2 component serial digital signal
- Serial digital outputs:**
Active-through output connector (BNC type) (1)
0.8 Vp-p-10%, 75 Ω
4:2:2 component serial digital video signal
- Analog outputs:**
ANALOG OUT Y/G, B-Y/B, R-Y/R connectors (BNC type) (2 each)
Analog component video signals or RGB signals (selectable with on-board switch)
- RGB signals:**
R: 0.7 Vp-p, 75 Ω
G: 0.7 Vp-p, 75 Ω
B: 0.7 Vp-p, 75 Ω
Defined with the color bar signal 100/0/100/0.
- YUV (CCIR) signals:**
Y: 1.0 Vp-p, 75 Ω (incl. Y sync 300 mV)
B-Y: 0.7 Vp-p, 75 Ω
R-Y: 0.7 Vp-p, 75 Ω
Defined with the color bar signal 100/0/100/0.
- YUV (Betacam 7.5% setup) signals:**
Y: 1.0 Vp-p, 75 Ω (incl. Y sync 286 mV)
B-Y: 0.7 Vp-p, 75 Ω
R-Y: 0.7 Vp-p, 75 Ω
Defined with the color bar signal 100/7.5/77/7.5.
- YUV (Betacam 0% setup) signals:**
Y: 1.0 Vp-p, 75 Ω (incl. Y sync 286 mV)
B-Y: 0.756 Vp-p, 75 Ω
R-Y: 0.756 Vp-p, 75 Ω
Defined with the color bar signal 100/0/75/0.

Sync signal outputs:
SYNC connectors: BNC type (2)
2.0 Vp-p-10%, 75 Ω

Data transmission

Channel coding:
Scrambled NRZI

Transmission speed:
Input: 270 Mb/s

Amplitude:
0.8 Vp-p-10%

Cable length:
200 m max. (when using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

Digital input/output return loss:
15 dB or more (5 MHz to 270 MHz)

Signal format:
4:2:2 component serial digital video signal conforming to SMPTE259M
Serial digital interface

Video characteristics

Sampling frequency:
Y: 13.5 MHz R-Y, B-Y: 6.75 MHz

Digitization:
10 bits

Bandwidth:
Y: 5.75 MHz R-Y, B-Y: 2.75 MHz

Y, R-Y, B-Y phase error:
20 ns or less

K factor (2T pulse):
1% or less

Signal-to-noise ratio:
60 dB or more

System delay:
Approx. 3.7 μs

EDH:
Conforms to SMPTE PR165

General

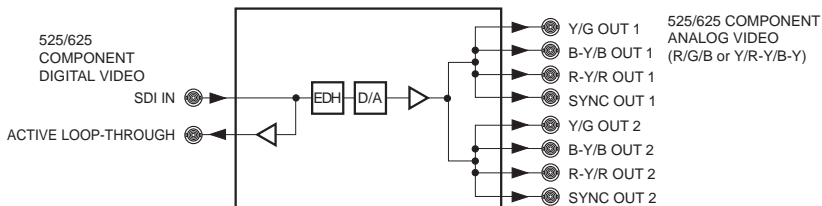
Power requirements:
+5 V DC: 1.0 A
(Supplied from the PFV-L Series Interface Unit)



Rear Panel

- Operating temperature:**
5 to 40 °C (41 to 104 °F)
- Operating humidity:**
10 to 90% (no condensation)
- Dimensions**
Board (H x D):
77 x 267 mm
(3 1/8 x 10 5/8 inches)
Connector panel (W x H):
33 x 85 mm
(1 5/16 x 3 3/8 inches)
- Mass**
Board:
Approx. 140 g (5 oz)
Connector panel:
Approx. 120 g (4 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual



BKPF-L603 SDI Distribution Board

The BKPF-L603 SDI distribution board accepts a 525/625 component serial digital or NTSC/PAL composite serial digital video signal and distributes it to eight outputs. The output cable length can be up to 200 m (Belden 8281, Fujikura 5C2V or equivalent cable).

Features

- * 525/625 component serial digital or NTSC/PAL composite serial digital video input
- * Eight equalized and re-clocked distribution outputs
- * High quality 10-bit signal processing
- * Automatic equalization for output cable length of up to 200m (with Belden 8281, Fujikura 5C2V or equivalent cable)

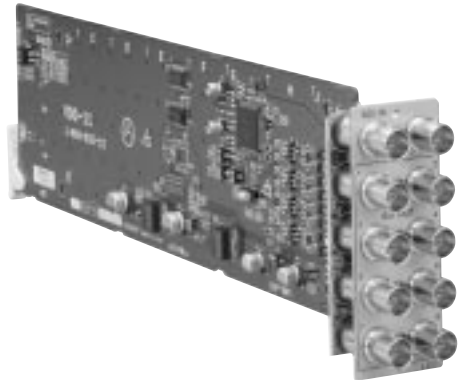
The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

EX-731 Extension Board (Part No.A-8322-598-A) (1)



Rear Panel

Interface Processor L Series

Specifications

Inputs/outputs

Serial digital input:

SDI IN connector (BNC type) (1)

Serial digital outputs:

SDI OUT connectors (BNC type) (8)

0.8 Vp-p, 75 Ω

Data transmission

Channel coding:

Scrambled NRZI

Transmission speed:

143 Mb/s (NTSC composite serial digital)

177 Mb/s (PAL composite serial digital)

270 Mb/s (525/625 component serial digital)

Amplitude:

0.8 Vp-p-10%

Cable length:

200 m max. (when using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

Digital input/output return loss:

-15 dB or more (5 MHz to 270 MHz)

Signal format:

NTSC/PAL composite or 525/625 component serial digital signal conforming to SMPTE259M-A/ B/C (ITU-R BT.601/BT.656); 143, 177, 270 Mb/s

General

Power requirements:

+5 V DC: 0.3 A

(Supplied from the PFV-L Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x D):

77 x 267 mm

(10 5/8 x 3 1/8 inches)

Connector panel (W x H):

33 x 85 mm

(1 5/16 x 3 3/8 inches)

Mass

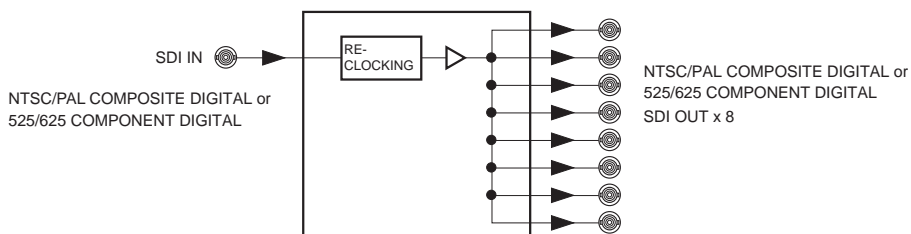
Board

Approx. 110 g (4 oz)

Connector panel

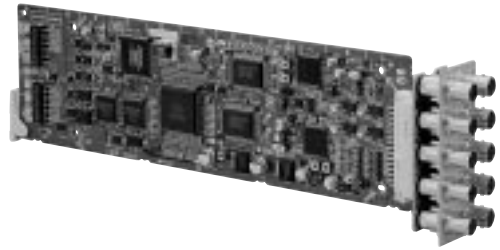
Approx. 100 g (4 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual



BKPF-L605 Audio/Video Multiplexer Board

The BKPF-L605 is an audio/video multiplexer that embeds two AES/EBU stereo pairs (four individual channels) into a 525/625 component or NTSC composite serial digital video signal, offering lower system cost by reducing the number of modules required for multiple Audio Group multiplexing. By cascading two BKPF-L605 boards, a further four AES/EBU signals can be embedded to a serial digital video signal, making a total of eight AES/EBU stereo pairs (16 audio channels). The BKPF-L605 distributes the serial digital video with embedded audio signal to four outputs.



Features

- * Multiplexes four AES/EBU stereo pair signals into a 525/625 component or NTSC composite serial digital video signal
- * Up to 16 individual audio channels multiplexed by cascading two boards
- * One serial digital input with an active loop-through output
- * Four serial digital distribution outputs
- * Four AES/EBU stereo pair inputs (eight individual channels)
- * Channel swap capabilities
- * Audio Group assignment selectable with on-board switch
- * Function selection for channels 3/4
- * EDH monitoring and insertion

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

EX-731 Extension Board (Part No.A-8322-598-A) (1)

Specifications

Inputs/outputs

SDI

SDI input:

- SDI IN connector (BNC type) (1)
- 4:2:2 component serial digital video signal or 4 fsc NTSC composite digital video signal conforming to SMPTE259M (selectable with on-board switch)

Input impedance:

75 Ω

Cable length:

200 m max. (When using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

SDI outputs:

- Active-through output connector (BNC type) (1)
- SDI OUT connectors (BNC type) (4)
- Serial digital video signal of the same format as that to the input connector
- 0.8 Vp-p±10%, 75 Ω

Digital audio inputs

Digital audio signal inputs:

- AES/EBU IN connectors (BNC type) (4)
- 48 kHz/20 bits
- AES/EBU digital audio signal, 1 Vp-p±10%, 75 Ω, unbalanced

Cable length:

1000 m max. (when using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

Multiplex format:

Conforms to SMPTE272M

EDH:

Conforms to SMPTE PR165

General

Power requirements:

+5 V DC: 1.0 A
(Supplied from the PFV-L Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x D):
77 x 267 mm
(3 1/8 x 10 5/8 inches)



Rear Panel

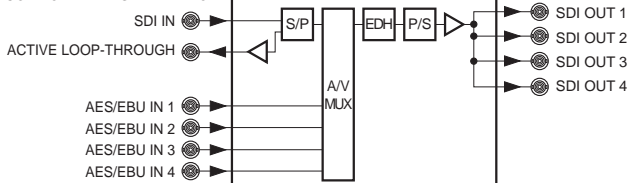
Connector panel (W x H):
33 x 85 mm
(1 5/16 x 3 3/8 inches)

Mass

Board:
Approx. 130 g (5 oz)
Connector panel:
Approx. 120 g (4 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual

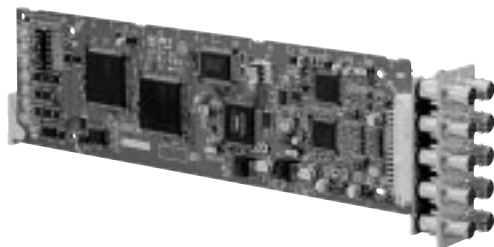
NTSC COMPOSITE DIGITAL or
525/625 COMPONENT DIGITAL VIDEO



NTSC COMPOSITE DIGITAL or
525/625 COMPONENT DIGITAL
VIDEO WITH EMBEDDED AUDIO

BKPF-L606 Audio/Video Demultiplexer Board

The BKPF-L606 is an audio/video demultiplexer board that extract AES/EBU format digital audio signals from a multiplexed 525/625 component serial or NTSC composite serial digital video signal. A single BKPF-L606 board will extract two AES/EBU stereo pairs (four audio channels). Up to eight AES/EBU stereo pairs (16 audio channels) can be separated from a 525/625 component serial digital video signal by cascading four BKPF-L606 boards. The BKPF-L606 distributes an input serial digital video signal to four outputs and each of two extracted AES/EBU stereo pairs to four outputs.



Features

- * Demultiplexes two AES/EBU stereo from a 525/625 component or NTSC composite serial digital video signal *
- Up to 16 individual audio channels demultiplexed by cascading two boards *
- One serial digital input with an active loop-through output *
- Four serial digital distribution outputs *
- Four AES/EBU stereo outputs *
- Channel swap capabilities *
- Audio Group assignment selectable with on-board switch *
- EDH monitoring and insertion

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Multiplex system:

Conforms to SMPTE 272M

Supplied Accessories

EX-731 Extension Board (Part No.A-8322-598-A) (1)

EDH:

Conforms to SMPTE PR165

General

Power requirements:

+5 V DC: 1.1 A

(Supplied from the PFV-L Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x D):

77 x 267 mm

(3 1/8 x 10 5/8 inches)

Connector panel (W x H):

33 x 85 mm

(1 5/16 x 3 3/8 inches)

Mass

Board:

Approx. 130 g (5 oz)

Connector panel:

Approx. 120 g (4 oz)

Specifications

Inputs/outputs

SDI

SDI input:

SDI IN connector (BNC type) (1)

4:2:2 component serial digital video signal or 4 fsc NTSC composite digital video signal conforming to SMPTE259M (selectable with on-board switch)

Input impedance:

75 Ω

Cable length:

200 m max. (when using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

SDI outputs:

Active-through output connector (BNC type) (1)

SDI OUT connectors (BNC type) (4)

Serial digital video signal of the same format as that to the input connector

0.8 V_{p-p}±10%, 75 Ω

Digital audio outputs

Digital audio signal outputs:

AES/EBU OUT connectors (BNC type) (4)

48 kHz/20 bits

AES/EBU digital audio signal, 1

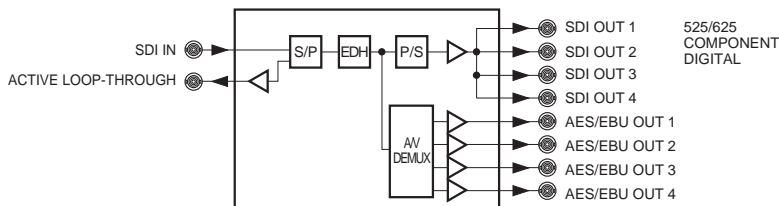
V_{p-p}±10%, 75 Ω, unbalanced

Service parts: Extension board (Part No.A-8322-598-A),

Maintenance manual



Rear Panel



BKPF-L608C 4:2:2 Frame/Line Synchronizer Board

The BKPF-L608C is a 4:2:2 frame/line synchronizer board used to that synchronizes a 4:2:2 component serial digital video input signal to an external analog reference. This 10-bit serial 4:2:2 synchronizer features a Freeze control that is field/frame auto/manual selectable and also includes phase adjustment. The selection of frame sync or line sync mode solves timing problem in a component serial digital environment. Up to eight embedded audio channels can be passed. Four distribution outputs are provided.

Features

*High performance frame/line synchronizer — 10-bit 4:2:2 internal processing; Supports SMPTE259M-C; One equalized input with active loop-through output; Four distribution outputs; Black burst reference input with passive loop-through output; GPI input *Two synchronization modes selectable to synchronize the input signal to the external reference in steps of single frame or single line — Frame Synchronization mode and Line Synchronization mode *H/V phase adjustment available in Frame Synchronization mode *Freeze function when an error is detected in the input signal — Auto/Manual freeze selectable; Field/Frame freeze selectable *Passes eight embedded audio channels and other ancillary data in VBI — Automatically mutes embedded audio when picture frozen *EDH monitoring and insertion

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

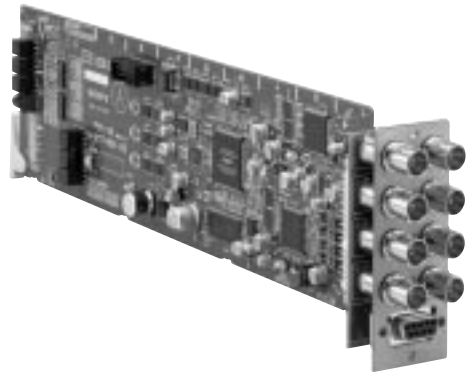
Installation manual (1)

Installaton guide (1)

Slot number label (1 set) (1)

EX-731 extension board (Part No.

A-8322-598-A) (1)



Rear Panel

Interface Processor L Series

Specifications

Inputs/outputs

Video standard:

525/625, 4:2:2 component serial digital signal (SDI), conforming to SMPTE259M-C, 270 Mb/s

Serial digital input:

SDI IN connector (BNC type) (1)

Digital input return loss:

15 dB or more (5 MHz to 270 MHz)

Cable length:

200 m max. (with Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

Serial digital outputs:

Active-through output connector (BNC type) (1),

SDI OUT connector (BNC type) (4),

0.8 Vp-p $\pm 10\%$, 75 Ω

Digital output return loss:

15 dB or more (5 MHz to 270 MHz)

Reference input:

REF IN connector (BNC type) (1)

0.3 Vp-p $\pm 10\%$, 75 Ω , black burst signal

Reference output:

Passive loop-through output connector (BNC type) (1)

GPI:

REMOTE connector (D-sub 9-pin) (1), open collector input

Memory:

4 fields

Phase adjustment range:

Line: -2 H, -1 H, ± 0 H, +1 H

Clock: -5.0 to +9.4 μ s (74 ns steps)

Fine: more than 80 ns (continuously variable)

General

Power requirements:

+5 V DC: 0.7 A

(Supplied from PFV-L Series Interface Unit)

Operating temperature:

5 to 40 $^{\circ}$ C (41 to +104 $^{\circ}$ F)

Storage temperature:

-20 to 60 $^{\circ}$ C (-4 to 140 $^{\circ}$ F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x W):

77 x 267 mm

(3 1/8 x 10 3/4 inches)

Connector panel (H x D x W):

130 x 152.5 x 38 mm

(5 1/8 x 6 1/8 x 1 1/2 inches)

Mass

Board:

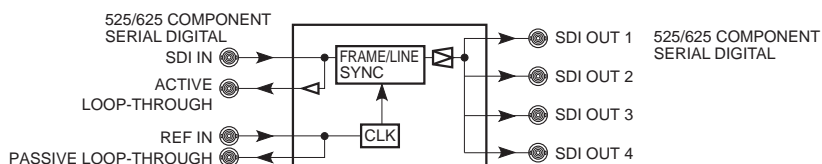
Approx. 130 g (5 oz)

Connector panel:

Approx. 120 g (4 oz)

Service parts: Extension board (Part

No.A-8322-598-A), Maintenance manual



BKPF-L611 3-ch SDI Distribution Board

The BKPF-L611 is a three-input SDI distribution amplifier board, distributing each input to two outputs. It accepts any component or composite serial digital video signal. The BKPF-L611 can operate at bit rates of up to 540 Mb/s (143, 177, 270, 360 and 540 Mb/s serial formats) and can be used for DVB/ASI signal distribution. The BKPF-L611 is suitable to double the outputs of a digital video router that does not have the dual output.

Features

- * Three 525/625 component or NTSC/PAL composite serial digital video inputs
- * Two equalized and re-clocked distribution outputs from each input
- * Auto selection of 143, 177, 270, 360 and 540 Mb/s serial formats (manual selection also available with on-board switch)
- * High-quality 10-bit signal processing
- * Automatic equalization for output cable lengths of up to 150m/200 m (at 540 Mb/s/360, 270, 177, 143 Mb/s with Belden 8281, Fujikura 5C2V or equivalent cable)
- * Accepts DVB/ASI signals
- * SDI input presence lamp

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

EX-731 Extension Board (Part No.A-8322-598-A) (1)

Specifications

Inputs/outputs

Serial digital inputs:

- SDI IN connectors (BNC type) (3)
- NTSC/PAL composite or 525/625 component serial digital signal conforming to SMPTE259M-A/ B/C (ITU-R BT.601/ BT.656)/D (ITU-R BT.601/ BT.656); 143,177,270, 360 Mb/s
- Component serial digital signal: 540 Mb/s
- (Selectable by auto or manual settings)

Input return loss:

15 dB or more (at 5 MHz to 540 MHz)

Cable length:

- 143, 177, 270, 360 Mb/s: 200 m max.
- 540 Mb/s: 150 m max. (When using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

Serial digital outputs:

- SDI OUT connectors (BNC type) (6:3 for each channel)
- 0.8 Vp-p \pm 10%, 75 Ω

Output return loss:

15 dB or more (at 5 MHz to 540 MHz)

Rise time/fall time:

0.5 to 0.75 ns (20% and 80% amplitude points)

Overshoot:

Less than 10%

Alignment jitter:

Less than 0.2 Utp-p (UI = Unit Interval)

DC offset:

Less than 0 \pm 0.5 V

General

Power requirements:

+ 5 V DC: 0.7 A (supplied from the PFV-L Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °C)

Operating humidity:

10 to 90% (no condensation)

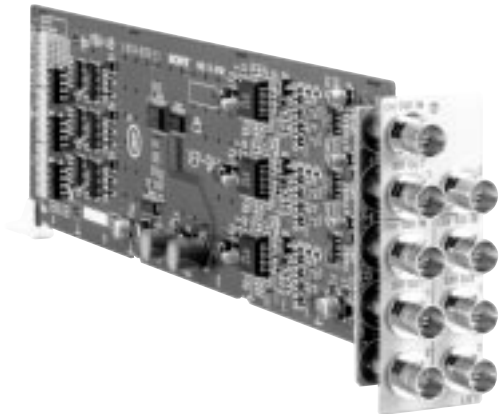
Dimensions

- Board (H x D):
77 x 267 mm
(3 1/8 x 10 5/8 inches)
- Connector panel (W x H):
33 x 85 mm
(1 5/16 x 3 3/8 inches)

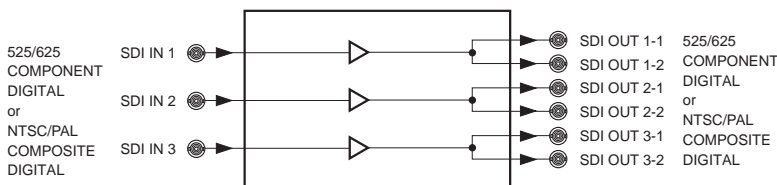
Mass

- Board:
140 g (5 oz)
- Connector panel:
100 g (4 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual

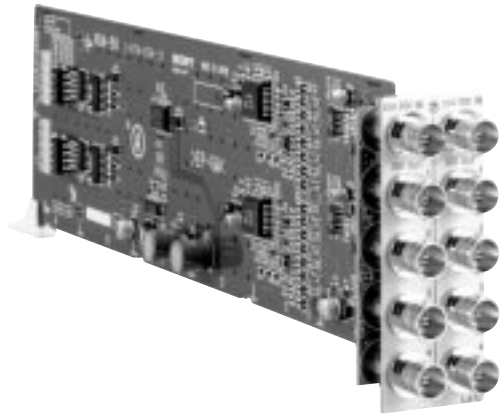


Rear Panel



BKPF-L612 2-ch SDI Distribution Board

The BKPF-L612 is a two-input SDI distribution amplifier board, distributing each input to four outputs. It accepts any component or composite serial digital video signal. The BKPF-L612 can operate at bit rates of up to 540 Mbps (143, 177, 270, 360 and 540 Mb/s serial formats) and can be used for DVB/ASI signal distribution. By installing dual, one input - four outputs distribution amplifier boards, like the BKPF-L612, into a PFV-L10 interface unit, a high packing density distribution amplifier unit can be built up.



Features

- * Two 525/625 component serial digital or NTSC/PAL composite serial digital video inputs
- * Four equalized and re-clocked distribution outputs from each input
- * Auto selection of 143, 177, 270, 360 and 540 Mb/s serial formats (manual selection also available with on-board switch)
- * High-quality 10-bit signal processing
- * Automatic equalization for output cable lengths of up to 150m/200 m (at 540 Mbps/360, 270, 177, 143 Mb/s with Belden 8281, Fujikura 5C2V or equivalent cable)
- * Accepts DVB/ASI signals
- * SDI input presence lamp

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

EX-731 Extension Board (Part No.A-8322-598-A) (1)

Specifications

Inputs/outputs

Serial digital inputs:

- SDI IN connectors (BNC type) (2)
- NTSC/PAL composite or 525/625 component serial digital signal conforming to SMPTE259M-A/B/C (ITU-R BT.601/BT.656)/D (ITU-R BT.601/BT.656): 143,177,270, 360 Mb/s
- Component serial digital signal: 540 Mb/s
- (Selectable by auto or manual settings)

Input return loss:

15 dB or more (at 5 MHz to 540 MHz)

Cable length:

- 143, 177, 270, 360 Mb/s: 200 m max.
- 540 Mb/s: 150 m max.
- (When using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

Serial digital outputs:

- SDI OUT connectors (BNC type) (8: 4 for each channel)
- 0.8 Vp-p \pm 10%, 75 Ω

Output return loss:

15 dB or more (at 5 MHz to 540 MHz)

Rise time/fall time:

0.5 to 0.75 ns (20% and 80% amplitude points)

Overshoot:

Less than 10%

Alignment jitter:

Less than 0.2 Ulp-p (UI = Unit Interval)

DC offset:

Less than 0 \pm 0.5 V

General

Power requirements:

+ 5 V DC: 0.6 A (supplied from the PFV-L Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x D):

77 x 267 mm
(3 1/8 x 10 5/8 inches) (h/d)

Connector panel (W x H):

33 x 85 mm
(1 5/16 x 3 3/8 inches)

Mass

Board:

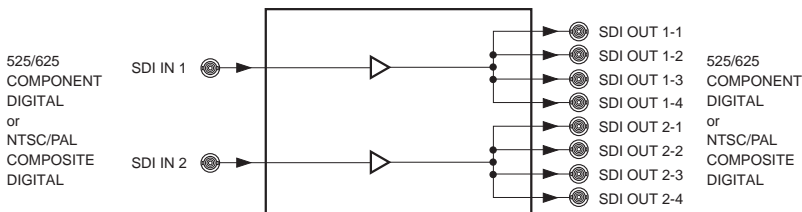
140 g (5 oz)

Connector panel:

100 g (4 oz)



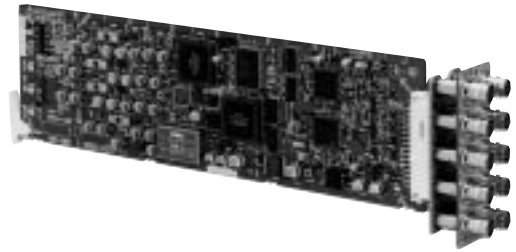
Rear Panel



Interface Processor L Series

BKPF-L613C Monitoring SDI Distribution Board

The BKPF-L613C monitoring SDI distribution board accepts a 525/625 component serial digital video signal and distributes it to four outputs. An active loop-through output of the input signal is also provided. A D to A converter also provides four analog outputs for monitoring purposes. These monitoring outputs can provide either four composite signals, or a single composite output plus a YUV or RGB output. The output cable length can be up to 200 m (Belden 8281, Fujikura 5C2V or equivalent cable).



Features

- * Distributes a 525/625 component serial digital input signal to four outputs
- * Analog video monitoring outputs (composite analog, Y/U/V or R/G/B component analog)
- * Active through output
- * Supports EDH

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

EX-731 Extension Board (Part No.A-8322-598-A) (1)



Rear Panel

Interface Processor L Series

Specifications

Inputs/outputs

Serial digital input:

- SDI IN connector (BNC type) (1)
- 0.8 Vp-p ±10%, 75 Ω
- 525/625 component serial digital signal conforming to SMPTE259M-C (ITU-R BT.601/BT.656), 270 Mb/s

Serial digital outputs:

- Active-through output connectors (BNC type) (4)
- 0.8 Vp-p ±10%, 75 Ω
- Serial digital video signal of the same format as that to the input connector
- SDI OUT connectors (BNC type) (4)
- 0.8 Vp-p ±10%, 75 Ω
- Serial digital video signal of the same format as that to the input connector

Analog outputs:

- MONITOR OUT connectors (BNC type) (4)
- 4 NTSC/PAL composite analog video signals or 1 each R/G/B signals or 1 each Y/U/V signals and 1 NTSC/PAL composite analog video signals

RGB signals:

- R: 0.7 Vp-p, 75 Ω
- G: 0.7 Vp-p, 75 Ω
- B: 0.7 Vp-p, 75 Ω

YUV (CCIR level, 625 mode only) signals:

- Y: 1.0 Vp-p, 75 Ω (incl. Y sync 300 mV)
- B-Y: 0.7 Vp-p, 75 Ω
- R-Y: 0.7 Vp-p, 75 Ω
- Defined with the color bar signal 100/0/100/0

YUV (Betacam 7.5% setup, 525 mode only) signals:

- Y: 1.0 Vp-p, 75 Ω (incl. Y sync 286 mV)
- B-Y: 0.7 Vp-p, 75 Ω
- R-Y: 0.7 Vp-p, 75 Ω
- Defined with the color bar signal 100/7.5/77/7.5

YUV (Betacam 0% setup, 525 mode only) signals:

- Y: 1.0 Vp-p, 75 Ω (incl. Y sync 286 mV)
- B-Y: 0.756 Vp-p, 75 Ω
- R-Y: 0.756 Vp-p, 75 Ω
- Defined with the color bar signal 100/0/75/0

NTSC composite video (525 mode only) signals:

- 1.0 Vp-p, 75 Ω (incl. Y sync 286 mV)
- Defined with the color bar signal 100/7.5/77/7.5

PAL composite video (625 mode only) signal:

- 1.0 Vp-p, 75 Ω (incl. Y sync 286 mV)
- Defined with the color bar signal 100/0/75/0

Data transmission

Channel coding:

Scrambled NRZI

Transmission speed:

Input: 270 Mb/s

Amplitude:

0.8 Vp-p ±10%

Cable length:

- 200 m max. (When using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

Digital input/output return loss:

- 15 dB or more (5 MHz to 270 MHz)

Signal format:

- 525/625 component serial digital signal conforming to SMPTE259M-C (ITU-R BT.601/BT.656), 270 Mb/s

Video characteristics

Sampling frequency:

- Y: 13.5 MHz R-Y, B-Y: 6.75 MHz
- Composite signal: 27 MHz

Digitization:

- 8 bits (Only for the composite signals, interpolating 8 bits to 10 bits.)

Bandwidth:

- Y, R, G, B composite: 5 MHz
- R-Y, B-Y: 2 MHz

Y, R-Y, B-Y phase error:

- 20 ns or less

K factor (2T pulse):

- 1% or less

Signal-to-noise ratio:

- Y, R-Y, B-Y: 48dB or more
- Composite signal: 54 dB or more (when the lamp signal is input)

DG:

- 2% or less

DP:

- 2° or less

System delay:

- Approx. 2.3 ms

EDH:

- Conforms to SMPTE RP165

General

Power requirements:

- +5 V DC: 1.0 A
- (Supplied from the PFV-L Series Interface Unit)

Operating temperature:

- 5 to 40 °C (41 to 104 °F)

Operating humidity:

- 10 to 90% (no condensation)

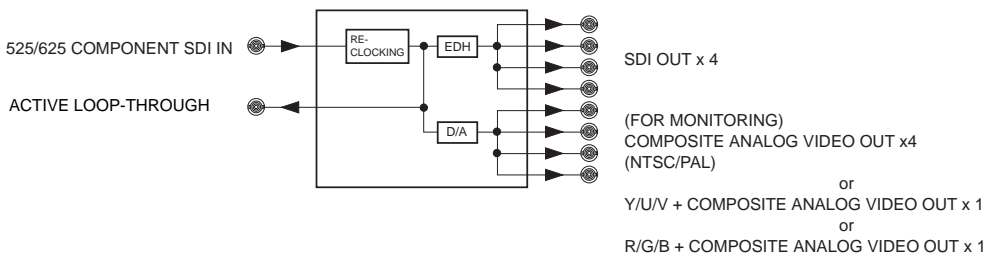
Dimensions

- Board (H x D): 77 x 267 mm (10 5/8 x 3 1/8 inches)
- Connector panel (W x H): 33 x 85 mm (1 5/16 x 3 3/8 inches)

Mass

- Board: Approx. 150 g (5 oz)
- Connector panel: Approx. 120 g (4 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual



BKPF-L632 Monitoring Composite Encoder Board

The BKPF-L632 is 525/625 component serial digital to NTSC/PAL composite analog encoder board. It has two component inputs, and provides three distribution outputs from each input. Either 525 or 625-line input signals can be converted and encoded to NTSC/PAL composite analog video signals. 8-bit processing is used to provide output signals suitable for picture monitoring purposes. The BKPF-L632 is an ideal system integration component, meeting the need to provide multi-channel picture monitoring in video systems.

Features

- * Two 525/625 component serial digital inputs with active loop-through
- * Converts and distributes each input signal to three NTSC/PAL composite analog outputs
- * Accepts either 525-line or 625-line signals with auto selection function (manual selection also available with on-board switch)
- * 7.5 IRE setup ON/OFF selectable for 525-line signals
- * 8-bit processing for monitoring purpose
- * SDI input presence lamp
- * -5 V warning lamp

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

- Installation guide (1)
- Installation manual (1)
- Slot number label (1 set) (1)
- EX-731 Extension Board (Part No.A-8322-598-A) (1)

Specifications

Inputs/outputs

Serial digital inputs:

- SDI IN connectors (BNC type) (2)
- 525/625 component serial digital signal conforming to SMPTE259M-C (ITU-R BT.601/BT.656), 270 Mb/s

Input return loss:

- 15 dB or more (at 5 MHz to 270 MHz)

Cable length:

- 200 m max. (When using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

Serial digital outputs:

- Active loop-through output connectors (BNC type) (2)
- 0.8 Vp-p $\pm 10\%$, 75 Ω

Output return loss:

- 15 dB or more (at 5 MHz to 540 MHz)

Rise time/fall time:

- 0.5 to 0.75 ns (20% and 80% amplitude points)

Overshoot:

- Less than 10%

Alignment jitter:

- Less than 0.2 UIp-p (UI = Unit Interval)

DC offset:

- Less than ± 0.5 V

Analog outputs:

- VIDEO OUT connectors (BNC type) (6: 3 for each channel)
- NTSC: 1.0 Vp-p $\pm 3\%$ (714 mVp-p/286 mVp-p), 75 Ω
- PAL: 1.0 Vp-p $\pm 3\%$, (700 mVp-p/300 mVp-p), 75 Ω

Analog Video Characteristics

Sampling frequency:

- 27.0 MHz

Resolution:

- 10 bits (conversion from 8 bits to 10 bits)

Signal to noise ratio:

- 54 dB or more

Frequency response:

- ± 0.5 dB

DG/DP:

- NTSC: Less than 2%/2"
- PAL: Less than 2%/3.5"

Y/C delay:

- Less than ± 20 ns

General

Power requirements:

- + 5 V DC: 1.0 A (supplied from the PFV-L Series Interface Unit)

Operating temperature:

- 5 to 40 °C (41 to 104 F°)

Operating humidity:

- 10 to 90% (no condensation)

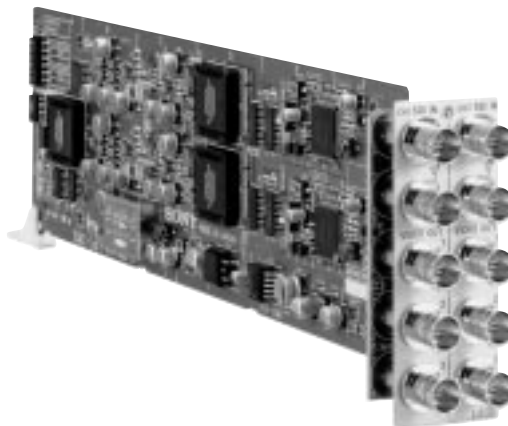
Dimensions

- Board (H x D): 77 x 267 mm (3 1/8 x 10 5/8 inches)
- Connector panel (W x H): 33 x 85 mm (1 5/16 x 3 3/8 inches)

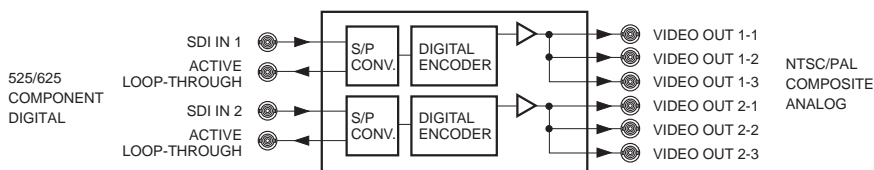
Mass

- Board: 140 g (5 oz)
- Connector panel: 100 g (4 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual



Rear Panel



BKPF-L641 NTSC/PAL To 4:2:2 Decoder Board

The BKPF-L641 is a decoder board that converts an NTSC/PAL composite analog input signal into a 4:2:2 component serial digital video output signal. This decoder board features 10-bit digital internal processing, a three-line adaptive comb filter and a frame synchronizer. In conjunction with the BKPF-L642 4:2:2 to NTSC/PAL encoder board, the color frame ID inserter function avoids the reverse color framing that may be generated by the encode/decode chain. It maintains the content of the VBI. Four distribution outputs are provided. An internal test signal generator is included for maintenance purposes.

Features

*High performance NTSC/PAL decoder to component SDI — 10-bit 4:2:2 internal processing; Supports SMPTE259M-C; One equalized input with passive loop-through output; Four distribution outputs; Black burst reference input with passive loop-through output *3-line adaptive comb filter *NTSC/PAL selectable — Setup removal on/off selectable for NTSC signal *Built-in frame synchronizer — On /Off selectable; Auto/Manual freeze selectable (External reference mode only); H/V phase adjustment *Color frame ID insertion *Maintains the content of the VBI *EDH insertion *Built-in test signal generator

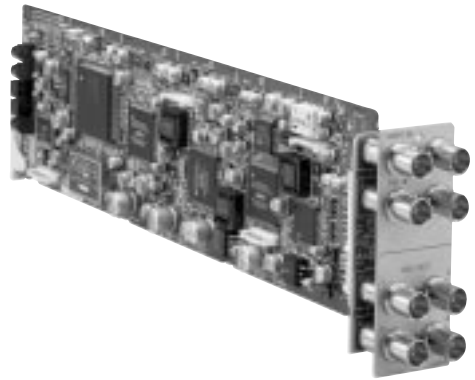
The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

Installation guide (1)
 Installation manual (1)
 Slot number label (1 set) (1)



Rear Panel

Interface Processor L Series

Specifications

Inputs/outputs

Analog video input:

Analog IN connector (BNC type) (1),
1.0 Vp-p, 75 Ω, NTSC/PAL composite
analog video signal

Reference input:

REF IN connector (BNC type) (1), 0.3
Vp-p ±10%,
75 Ω, black burst signal

Analog video output:

Passive loop-through output connector
(BNC type) (1),
1.0 Vp-p, 75 Ω, NTSC/PAL composite
analog video signal

Serial digital outputs:

SDI OUT Connectors (BNC type) (4),
0.8 Vp-p, 75 Ω, SDI conforming to
SMPTE259M-C, 270 Mb/s

Reference output:

Passive loop-through output connector
(BNC type) (1)

Cable length:

200 m max. (with Belden 8281, Fujikura
5C2V or equivalent coaxial cable)

Channel coding:

Scrambled NRZI

Digital output return loss:

15 dB or more (5 MHz to 270 MHz)

Video characteristics

Quantization:

10 bits

Sampling frequency

Input:

28.636 MHz (NTSC input), 35.468
MHz (PAL input)

Output:

13.5 MHz (Y), 6.75 MHz (B-Y/R-Y)

Band width:

5.75 MHz (Y)

K factor (2T pulse):

1% or less

Signal-to-noise ratio:

58 dB or more (using Flat Field)

Memory:

4 fields

Processing delay:

74 μs (NTSC)/137 μs (PAL)

Phase adjustment range

Line:

-2 H, -1 H, ±0 H, +1 H

INPUT Lock mode:

0.1 to 9 μs, 37 ns step

External REF mode:

-4.5 to +4.5 μs, 37 ns step

Test signal:

75% color bars with 100% white

General

Power requirement:

+5 V DC: 1.4A

(Supplied from PFV-L Series Interface
Unit)

Operating temperature:

5 °C to 40 °C (41 °F to 104 °F)

Storage temperature:

-20 to 60 °C (-4 to 140 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x W):

77 x 267 mm

(3 1/8 x 10 3/4 inches)

Connector panel (H x W):

85 x 33 mm

(3 3/8 x 1 5/16 inches)

Mass

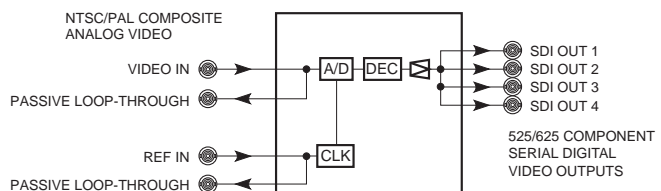
Board:

Approx. 170 g (6 oz)

Connector panel:

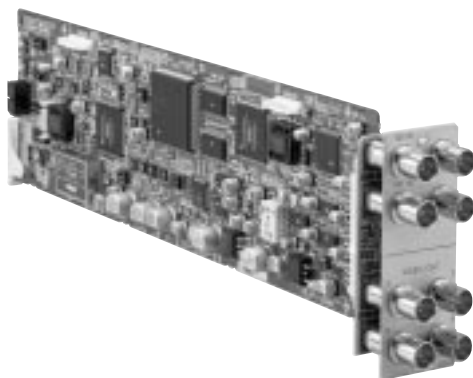
Approx. 100 g (4 oz)

The total power consumption of the installed
function boards should not exceed 13 A at 5 V
(PFV-L10) . Service part: Maintenance manual



BKPF-L642 4:2:2 To NTSC/PAL Encoder Board

The BKPF-L642 is an encoder board that converts a component 4:2:2 serial digital signal into an NTSC/PAL composite analog signal. It features 12-bit internal processing (10-bit signal path), 2x over sampling and a line synchronizer. In conjunction with the BKPF-L641 4:2:2 to NTSC/PAL decoder board, the color frame ID extractor function avoids the reverse color framing that may be generated by the encode/decode chain. It maintains ancillary data within the VBI. An internal test signal generator is provided for maintenance purposes. Four distribution outputs are provided. The BKPF-L642 uses 10-bit signal path for quality-critical application such as distribution or on-air transmission applications, while the BKPF-L632 8-bit NTSC/PAL encoder board is designed to support monitoring solution for 4:2:2 serial digital environment at a lower cost.



Features

- *High performance NTSC/PAL encoder — 12-bit internal processing; Supports SMPTE259M-C; One equalized input with active loop-through output; Four distribution outputs; Black burst reference input with passive loop-through output
- *NTSC/PAL selectable — Setup on/off selectable for NTSC signal
- *Built-in line synchronizer — H phase adjustment
- *Color frame ID extraction
- *Maintains VBI data to support Closed Caption
- *EDH monitoring
- *Built-in test signal generator

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

- Installation guide (1)
- Installation manual (1)
- Slot number label (1 set) (1)



Rear Panel

Interface Processor L Series

Specifications

Inputs/outputs

Serial digital input:

SDI IN connector (BNC type) (1),
0.8 Vp-p, 75 Ω, 4:2:2 component serial
digital signal, conforming to
SMPTE-259M-C, 270 Mb/s

Reference input:

REF IN connector (BNC type) (1), 0.3
Vp-p ±10%, 75 Ω, black burst signal

Digital input return loss:

15 dB or more (5 MHz to 270 MHz)

Serial digital output:

Active loop-through output connector
(BNC type) (1),
0.8 Vp-p, 75 Ω, 4:2:2 component serial
digital signal, conforming to
SMPTE-259M-C, 270 Mb/s

Analog video outputs:

ANALOG OUT connectors (BNC type)
(4),

NTSC/PAL composite analog video
signal, 1.0 Vp-p, 75 Ω

Reference output:

Passive loop-through output connector
(BNC type) (1),
0.3 Vp-p ±10%, 75 Ω, black burst
signal

Digital output return loss:

15 dB or more (5 MHz to 270 MHz)

Cable length:

200 m max. (with Belden 8281, Fujikura
5C2V or equivalent coaxial cable)

Channel coding:

Scrambled NRZI

Video characteristics

Sampling frequency:

27 MHz

Quantization:

10 bits

Band width:

5.75 MHz

DG:

1% or less

DP:

Within 1 °

K factor (2T pulse):

1% or less

Signal-to-noise ratio:

60 dB or more (using Flat Field)

Y/C delay:

±10 ns or less

Processing delay:

4 μs (NTSC)/7.5 μ (PAL)

Phase adjustment range

Line:

-2 H, -1 H, ±0 H, +1 H

Input lock mode:

0.1 to 8.5 μs (NTSC), 0.1 to 7.0 μs
(PAL)

External REF mode:

-4.2 to +4.2 μs (35 ns steps NTSC),

-3.5 to +3.5 μs (28 ns steps PAL),

Test signal 75% color bars with 100%
white

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x W):

77 x 267 mm
(3 1/8 x 10 3/4 inches)

Connector panel (H x W):

33 x 85 mm
(3 3/8 x 1 5/16 inches)

Mass

Board:

Approx. 150 g (5 oz)

Connector panel:

Approx. 100 g (4 oz)

Service part: Maintenance manual

General

Power requirement:

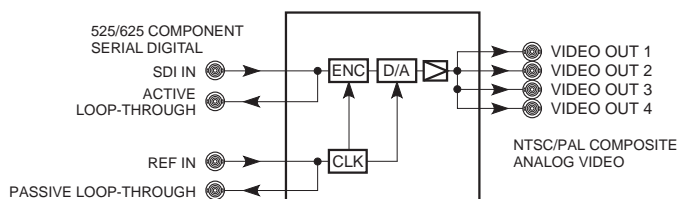
+5 V DC: 1.2 A (supplied from PFV-L
Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 60 °C (-4 to 140 °F)



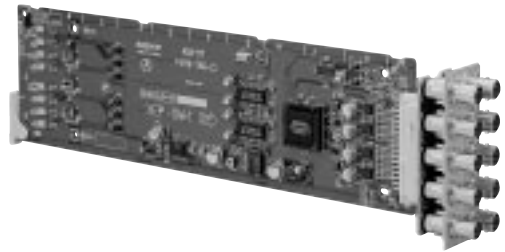
BKPF-L653 AES/EBU Distribution Board

The BKPF-L653 is a AES/EBU distribution board that operates in single eight-output or dual four-output modes for 75 Ω AES/EBU signals. Ten BKPF-L653 fit in one 2U PFV-L10 frame and provide high packing density of up to 80 AES/EBU distribution outputs within 2U rack space.

Features

- * Single or dual distribution configuration (selectable with on-board switch)
- * Eight distribution outputs from one AES/EBU stereo pair input
- * Four distribution outputs from two AES/EBU stereo pair inputs
- * 75 Ω unbalanced AES/EBU inputs and outputs
- * Automatic cable equalization
- * Data re-clocking for jitter reduction

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.



Rear Panel

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

EX-731 Extension Board (Part No.A-8322-598-A) (1)

Specifications

Input/output connectors

Audio inputs:

AES/EBU IN connectors (BNC type) (2),
75 Ω,
unbalanced

Audio outputs:

AES/EBU OUT connectors (BNC type)
(8), 75 Ω,
unbalanced

Input characteristics

Standard input level:

1 V p-p

Sampling frequency:

48 kHz, 44.1 kHz, 32 kHz

Input jitter margin:

25 ns or more

Input return loss:

25 dB or more (0.1 MHz to 6 MHz)

Cable length:

1000 m max.

(when using a Belden 8281 coaxial cable, Fujikura 5C2V or equivalents)

Output characteristics

Output signal level:

1 V p-p ± 10% (Terminated with 75 Ω)

DC offset:

Within ± 50 mV

Waveform rising/falling:

37 ± 7 ns

Output jitter:

Within 10 ns

Output return loss:

25 dB or more (0.1 MHz to 6 MHz)

System delay:

Approx. 150 ns (during re-clocking)

Approx. 50 ns (during non re-clocking)

General

Power requirements:

+5 V DC: 0.22 A

(Supplied from the PFV-L Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x D):

77 x 267 mm

(3 1/8 x 10 5/8 inches)

Connector panel (W x H):

33 x 85 mm

(1 5/16 x 3 3/8 inches)

Mass

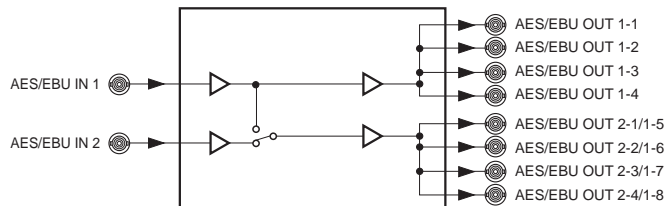
Board:

Approx. 120 g (4 oz)

Connector panel:

Approx. 120 g (4 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual



BKPF-L703A Analog Video Distribution Board

The BKPF-L703A analog video distribution board accepts an NTSC/PAL composite analog video signal and distributes it to eight outputs. The output cable length can be up to 300 m (Belden 8281, Fujikura 5C2V or equivalent cable).

Features

- * Distributes an NTSC/PAL composite analog input signal to eight outputs
- * Differential input
- * Passive loop-through output
- * Equalization for up to 300 m cable (Belden 8281, Fujikura 5C2V or equivalent cable)
- * Clamping ON/OFF selectable

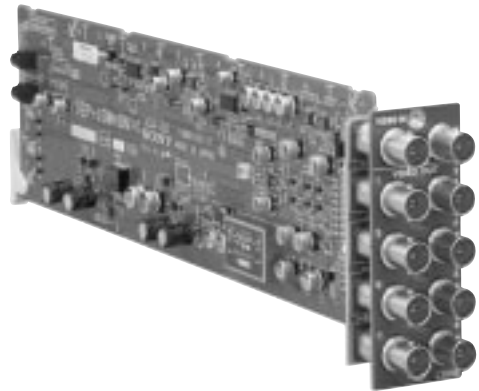
The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

EX-731 Extension Board (Part No.A-8322-598-A) (1)



Rear Panel

Interface Processor L Series

Specifications

Inputs/outputs

Video input:

VIDEO IN connector (BNC type) (1)

Video outputs:

Loop-through output connector (BNC type) (1)

VIDEO OUT connectors (BNC type) (8)

1 V_{p-p}, 75 Ω

Video characteristics

Frequency response:

5 MHz (-0.3 dB)

30 MHz (+0/-3 dB)

Input return loss:

40 dB or more (8 MHz or less)

K factor:

1% or less

DG:

1% or less

DP:

1% or less

Signal-to-noise ratio:

70 dB or more (using FLAT FIELD)

Cable length:

300 m max. (When using a Belden

8281, Fujikura 5C2V or equivalent coaxial cable)

General

Power requirements:

+5 V DC: 250 mA (supplied from the PFV-L Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x D):

267 x 77 mm

(10 5/8 x 3 1/8 inches)

Connector panel (W x H):

33 x 85 mm

(1 5/16 x 3 3/8 inches)

Mass

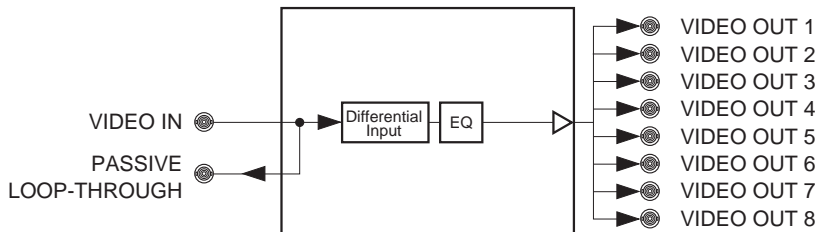
Board:

Approx. 110 g (4 oz)

Connector panel:

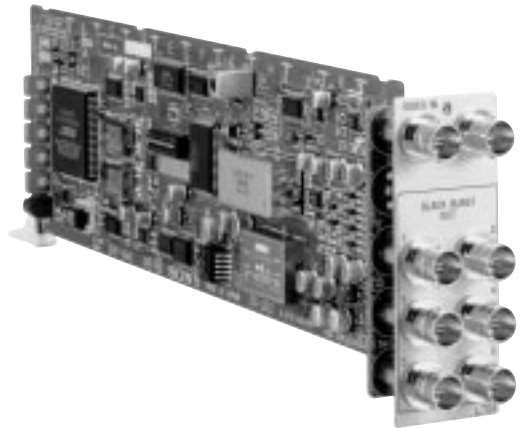
Approx. 110 g (4 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual



BKPF-L704 Black Burst Regenerator Board

The BKPF-L704 is an analog I/O black burst regenerator board with a range of NTSC system applications. For example, it can be used in a mixed analog/digital system, delaying the sync signal to the analog equipment to compensate for the longer video delay of the digital equipment. The BKPF-L704 is an ideal and cost-effective tool for use in systems that are making the transition from analog to digital—where both analog and digital equipment has to co-exist. For this type of application, the BKPF-L704 exactly meets customer needs.



Features

- * Regenerates black burst signals
- * NTSC composite analog input with passive loop-through
- * Six black burst outputs
- * Continuously variable delay of -4 H to +3 H
- * 0 IRE to 44 IRE variable setup
- * Video input presence lamp
- * SCH warning lamp
- * -5 V warning lamp

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Mass

Board:

140 g (5 oz)

Connector panel:

100 g (4 oz)

Supplied Accessories

EX-731 Extension Board (Part No.A-8322-598-A) (1)

Specifications

Inputs/outputs

Video input:
VIDEO IN connectors (BNC type) (1)
0.286 Vp-p (SYNC, Burst) at 75 Ω

Input return loss:
40 dB or more (at above 5 MHz)

Analog output:
Passive loop-through output connector (BNC type) (1)

Black burst outputs:
BLACK BURST OUT connectors (BNC type) (6), conforming to RS-170A

Output level:
SYNC: 0.286 Vp-p ±2% at 75 Ω
BURST: 0.286 Vp-p ±5% at 75 Ω

SCH:
Less than ±5°
Output return loss:
40 dB or more (above 5 MHz)
H phasing:
Approx. -4.5 to + 59.0 μs (all "0" position)
V phasing:
-4 to +3 H

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual



Rear Panel

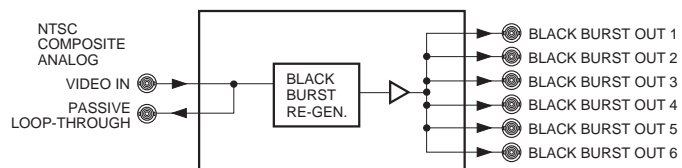
General

Power requirements:
+ 5 V DC: 0.35 A (supplied from the PFV-L Series Interface Unit)

Operating temperature:
5 to 40 °C (41 to 104 °F)

Operating humidity:
10 to 90% (no condensation)

Dimensions
Board (H x D):
77 x 267 mm
(3 1/8 x 10 5/8 inches)
Connector panel (W x H):
33 x 85 mm
(1 5/16 x 3 3/8 inches)



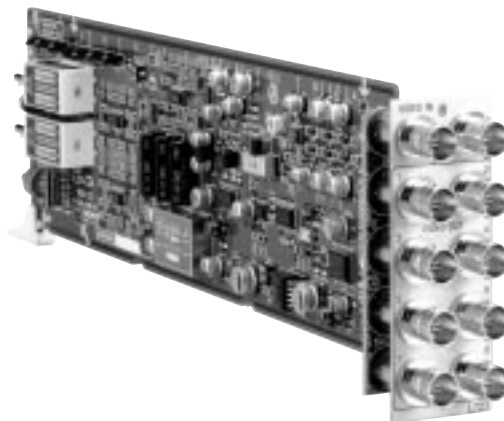
BKPF-L723 Video Delay Distribution Board

The BKPF-L723 is a video delay distribution board with an adjustable delay range of 50 ns to 1430 ns. It accepts either an NTSC or PAL analog video signal, and distributes the delayed video signal to eight outputs. Up to 300 m of output video cable can be equalized. The board is designed for a range of different applications, making it a valuable system integration tool.

Features

- * Distributes an NTSC or PAL analog signal, with a delay function
- * Adjustable delay range, 50 ns to 1430 ns
- * Eight distribution outputs
- * Passive loop-through output
- * Equalization for up to 300 m cable (Belden 8281, Fujikura 5C2V or equivalent cable)
- * Clamping ON/OFF selectable
- * Output level adjustment range: ± 2 dB
- * -5 V warning lamp

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.



Applicable Models

PFV-L10 Interface unit

Supplied Accessories

EX-731 Extension Board (Part No.A-8322-598-A) (1)

Specifications

Inputs/outputs

Video input:

VIDEO IN connector (BNC type) (1), 1 Vp-p

Input return loss:

40 dB or more (at under 5 MHz)

Video outputs:

VIDEO OUT connectors (BNC type) (8)
Passive loop-through output connector (BNC type) (1)

Cable length:

300 m max. (When using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

Output return loss:

40 dB or more (at above 5 MHz)

System delay:

Approx. 50 to 1430 ns
350 ns x 3 STEP
75 ns x 5 STEP
15 ns x 5 STEP
FINE adjustment: 15 ns

Analog Video Characteristics

Signal to noise ratio:

70 dB or more (10 kHz to 6 MHz)

Frequency response:

Less than -2.5 dB

DG/DP:

Less than 0.5%/0.5°

K factor:

0.5% or less

General

Power requirements:

+ 5 V DC: 0.6 A (supplied from the PFV-L Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x D):

77 x 267 mm
(3 1/8 x 10 5/8 inches)

Connector panel (W x H):

33 x 85 mm
(1 5/16 x 3 3/8 inches)

Mass

Board:

170 g (6 oz)

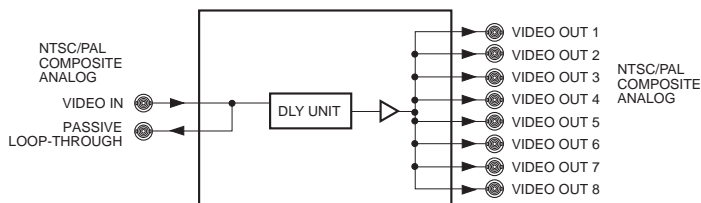
Connector panel:

120 g (4 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual



Rear Panel



BKPF-L751 Audio A to D Converter Board

The BKPF-L751 is a dual channel audio analog to digital converter board that accepts up to two analog audio stereo inputs and converts them into two AES/EBU format outputs. The signals carried by the two AES/EBU outputs can be interchanged. Conversion is at a resolution of 24 bits and at a sampling frequency of 48 kHz. Either a video reference (NTSC, PAL or HD) or a 48 kHz audio word clock can be used as a reference signal. A word clock output is available by setting an internal switch on the board so that other cascade-connected BKPF-L751 boards can be operated synchronously.

Features

- * Converts two stereo analog audio signals to two AES/EBU digital audio signals
- * 24 bits conversion at 48 kHz sampling frequency
- * The signals carried by the two AES/EBU outputs can be interchanged
- * Sync input accepts an NTSC/PAL/HD video or 48 kHz word clock signal (manual selection with on-board switch)
- * Word Clock output available (selectable with on-board switch)
- * Output level adjustment range: ± 4 dB
- * -5 V warning lamp

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

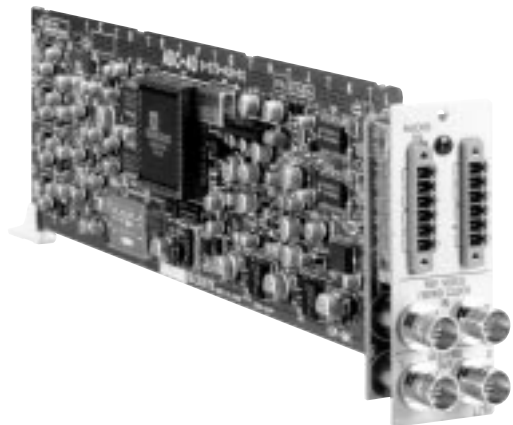
PFV-L10 Interface unit

Supplied Accessories

Phoenix type 6-pin connectors (2)

EX-731 Extension Board (Part

No.A-8322-598-A) (1)



Rear Panel

Interface Processor L Series

Specifications

Inputs/outputs

Analog audio inputs:

AUDIO IN connectors (Phoenix type
6-pin)
(2: 4 channels -2 stereo pairs)

Input level:

+ 4 dBm (600 Ω /20 k Ω selectable,
balanced)

Reference input:

REF VIDEO/WORD CLOCK IN
connector
(BNC type) (1)

Video input:

0.3 Vp-p (525/29.9 Hz, 625/25 Hz,
1125/60 Hz)

Word sync:

0.5 to 5.0 Vp-p (48 kHz)

Input return loss:

40 dB or more (at 5 MHz, 75 Ω
terminated)

AES/EBU audio outputs:

AES/EBU OUT connectors (BNC type)
(2: 1 for each stereo pair)
1.0 Vp-p \pm 10%, 75 Ω

Output return loss:

25 dB or more (at 0.1 MHz to 6.0 MHz)

Rise time/fall time:

30 to 44 ns

Alignment jitter:

Less than \pm 20 nsp-p

DC offset:

Less than 0 \pm 50 mV

Reference output:

Passive loop-through output connector
(selectable to Word Clock output
connector)
(BNC type) (1)

Word sync output:

1.0 Vp-p or 2.8 Vp-p, 48 kHz

Video characteristics

Sampling frequency:

48 kHz

Resolution:

24 bits

Head room:

20 dB (at +4 dBm)

Channel coding:

AES/EBU format

Frequency response:

Within +0.1/-0.2 dB (20 Hz to 20 kHz)

Distortion:

Less than 0.02%

Signal to noise ratio:

103 dB or more

Crosstalk:

Less than -90 dB (at under 15 kHz)

CMRR (Common Mode Rejection Ratio):

More than 80 dB (at 60 Hz)

Phase difference between channels:

Less than 4° (at 1 kHz)

Encoding delay:

Approx. 0.9 ms

General

Power requirements:

+ 5 V DC: 1.1 A (supplied from the
PFV-L Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x D):

77 x 267 mm

(3 1/8 x 10 5/8 inches)

Connector panel (W x H):

33 x 85 mm

(1 5/16 x 3 3/8 inches)

Mass

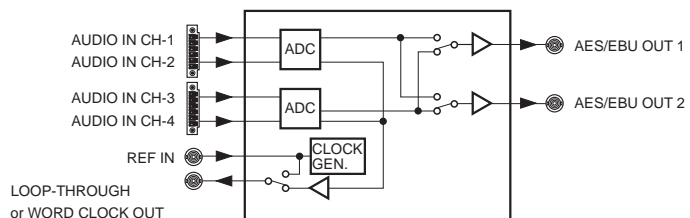
Board:

160 g (6 oz)

Connector panel:

110 g (4 oz)

Service parts: Extension board (Part
No.A-8322-598-A), Maintenance manual



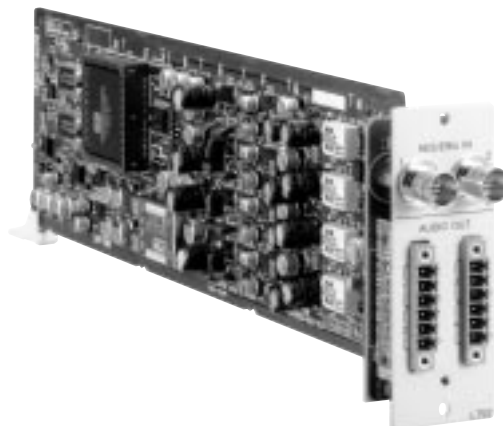
BKPF-L752 Audio D to A Converter Board

The BKPF-L752 is a dual channel digital audio to analog audio converter board. It converts each of two AES/EBU stereo-digital input signals into two monaural analog audio signals at a resolution of 24 bits/sample at 48 kHz. A de-emphasis function is provided.

Features

- * Converts AES/EBU digital signals to analog audio signals
- * 24 bits conversion at 48 kHz sampling frequency
- * Dual AES/EBU inputs are each output as two analog signals
- * De-emphasis ON/OFF selectable with on-board switch
- * AES/EBU channel status lamp
- * ±12 V warning lamp

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.



Applicable Models

PFV-L10 Interface unit

Supplied Accessories

- Phoenix type 6-pin connectors (2)
- EX-731 Extension Board (Part No.A-8322-598-A) (1)

Specifications

Inputs/outputs

AES/EBU digital audio inputs:
AES/EBU IN connectors (BNC type) (2), 75 Ω

Cable length:
1200 m max. (1 Vp-p input)

Input return loss:
25 dB or more (at 0.1 MHz to 6 MHz)

Analog audio outputs:
AUDIO OUT connectors (Phoenix type 6-pin)
(2: 4 channels -2 stereo pair)

Output level:
+4 dBm

Maximum output level:
+24 dBm (at 0 dB FS input)

Output impedance:
Approx. 22 Ω

Video characteristics

Sampling frequency:
48 kHz

Resolution:
24 bits

Head room:
20 dB (at +4 dBm)

Channel coding:
AES/EBU format

Frequency response:
Within 20 Hz to 20 kHz, +0.1/-0.2 dB

Distortion:
Less than 0.02%

Signal to noise ratio:
95 dB or more

Crosstalk:
Less than -90 dB (at under 15 kHz)

Phase difference between channels:
Less than 4° (at 1 kHz)

Decoding delay:
Approx. 0.7 ms

General

Power requirements:
+5 V DC: 1.3 A (supplied from the PFV-L Series Interface Unit)

Operating temperature:
5 to 40 °C (41 to 104 °F)

Operating humidity:
10 to 90% (no condensation)

Dimensions
Board (H x D):
77 x 267 mm
(3 1/8 x 10 5/8 inches)

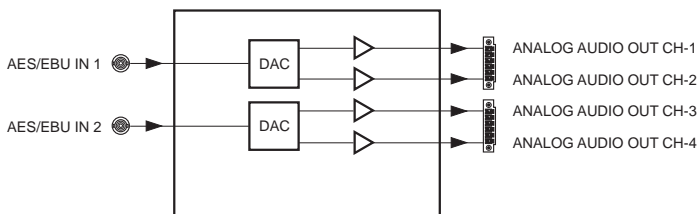
Connector panel (W x H):
33 x 85 mm
(1 5/16 x 3 3/8 inches)

Mass
Board:
180 g (6 oz)
Connector panel:
90 g (3 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual

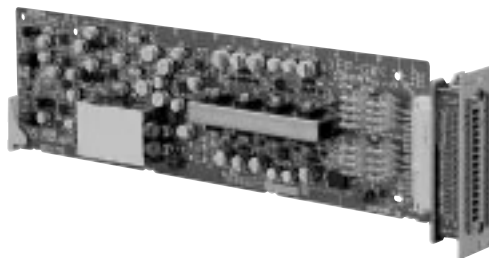


Rear Panel



BKPF-L753A Analog Audio Distribution Board

The BKPF-L753A analog audio distribution board distributes an analog stereo audio signal to four outputs or an analog monaural audio signal to eight outputs. A gain control allows the input reference level to be varied between -4 dBm and +12 dBm. Phoenix type connector for each distribution block carries its input and output signals.



Features

- * Single or dual distribution configuration (selectable with on-board switch)
- * Eight distribution outputs of a mono analog audio input
- * Four distribution outputs of a stereo analog audio input
- * Low noise
- * Gain control function

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

- Phoenix type 15-pin connectors (2)
- EX-731 Extension Board (Part No.A-8322-598-A) (1)

Specifications

Inputs/outputs

Inputs/outputs (selectable with on-board switch)

Stereo:

1 input/4 outputs

Monaural:

1 input/8 outputs

Input impedance (selectable with on-board switch):

600 Ω/20 kΩ

Standard input/output level:

+4 dBm

Maximum input level:

+28 dBm

Maximum output level:

+24 dBm (600 Ω load)

CMRR:

80 dB or more (at 60 Hz)

Frequency response:

±0.1 dB

(20 Hz to 20 kHz, at 1 kHz standard, standard level)

Input/output gain settings:

-8, -4, 0, +4, +8 dB (selectable)

Gain control range:

±2 dB

Distortion:

0.01% or less

(20 Hz to 20 kHz, at +24 dBm output, with 0 dB gain)

Signal-to-noise ratio:

115 dB or more (at +24 dBm output, 30 kHz LPF)

Crosstalk:

-95 dB or less

(20 Hz to 20 kHz at +24 dBm input/output, each channel)

General

Power requirements:

+5 V DC: 1.2 A
(Supplied from the PFV-L Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x D):

77 x 267 mm
(3 1/8 x 10 5/8 inches)

Connector panel (W x H):

33 x 85 mm
(1 5/16 x 3 3/8 inches)

Mass

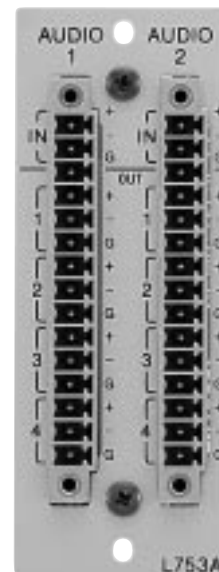
Board:

Approx. 180 g (6 oz)

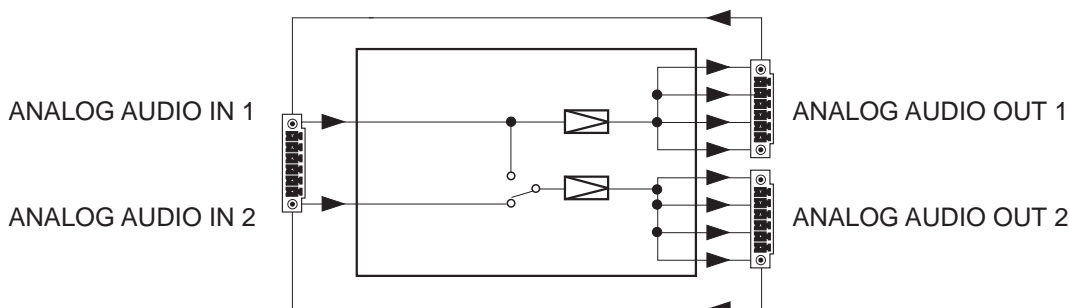
Connector panel:

Approx. 70 g (2 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual



Rear Panel



BKPF-L754 Audio Signal Generator Board

The BKPF-L754 is an audio signal generator board that has a dual audio signal generator. Each signal generator can be selected between 1 kHz or 440 Hz (440 Hz switchable to 400 Hz) via GPI or on-board switch. Three-channel outputs of each of these two signals are provided. Normally the left and right channels carry the same frequency, but they can be switched to carry different frequencies. The BKPF-L754 is especially of use as an audio identification for video sources, or as a centralized tone source.

Features

- * Provides two channels of test signals
 - * Independent frequency setting of both signals to either 440 Hz or 1 kHz (440 Hz can be changed to 400 Hz with on-board switch) via GPI or a switch on the front panel
 - * Three outputs of each test signal
 - * Output level adjustment
- SELECTABLE:** 0/+4/+8 dBm ±0.1 dB **VARIABLE:** -2 to +10 dBm
- * ±12 V internal power status lamp

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

Phoenix type 15-pin connectors (2)

EX-731 Extension Board (Part No.A-8322-598-A)

(1)

Specifications

Inputs/outputs

Audio outputs (including remote)

OUT and CONT connectors:

(Phoenix type 15-pin) (2)

(6 channels - 3 stereo pair and 1 GPI)

Video characteristics

Output frequency:

400 Hz/440 Hz/1 kHz ±10%

Distortion:

Less than 0.01%

Output level:

FIX: 0/+4/+8 dBm ±0.1 dB (600 Ω loaded)

VARIABLE: -2 to +10 dBm (600 Ω loaded)

General

Power requirements:

+ 5 V DC: 0.5 A (supplied from the PFV-L

Series Interface Unit)

Operating temperature:

5 to 40 °C (41 to 104 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x D):

77 x 267 mm

(3 1/8 x 10 5/8 inches)

Connector panel (W x H):

33 x 85 mm

(1 5/16 x 3 3/8 inches)

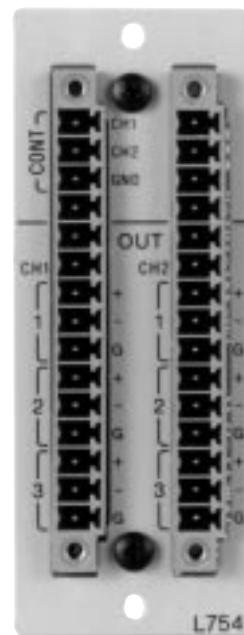
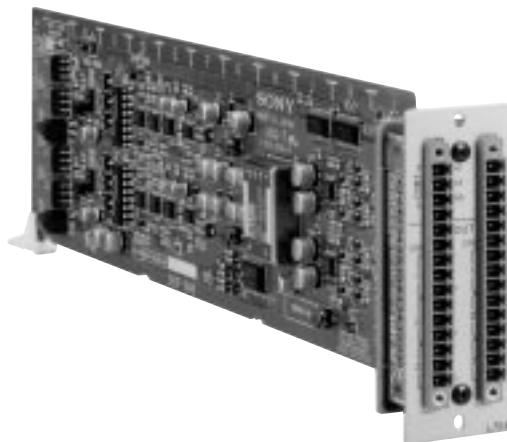
Mass

Board:

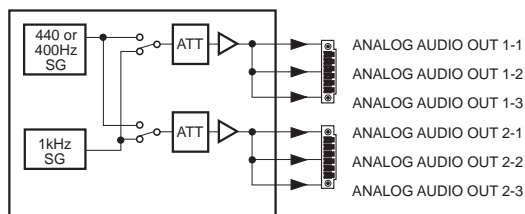
140 g (5 oz)

Connector panel:

100 g (4 oz)



Rear Panel



Service parts: Extension board (Part No.A-8322-598-A)

Maintenance manual

BKPF-L803 S-BUS Distribution Board

The BKPF-L803 is a two-input, eight-output S-BUS distribution board. It can be switched to provide four outputs from each of its inputs, or eight outputs from one input. The Sony S-BUS router control system has already earned an excellent reputation for the operational flexibility it brings to many system applications. The BKPF-L803 provides a further enhancement to the capability of the Sony router system by increasing the transmission distance of S-BUS signals by 500 m to a total of 1,000 m. It also provides multiple S-BUS control ports, a feature of particular use in OB vehicles.

Features

- * Two inputs * Four distribution outputs from each input *
- Switchable to a single input, eight output configuration *
- Equalization for up to 500 m cable (Belden 8281, Fujikura 5C2V or equivalent cable)

The BKPF-L Series function boards install in the PFV-L Series Interface Units in any combination with other BKPF-L Series function boards.

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

- Operation manual (1)
- Installation manual (1)
- Slot number label (1)
- EX-731 Extension Board (Part No.A-8322-598-A) (1)

Specifications

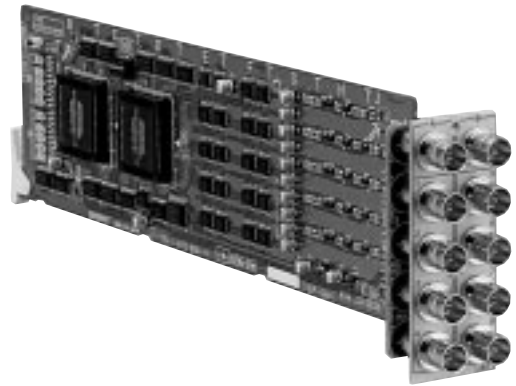
Inputs/outputs

- A, B inputs:
 - IN connectors (BNC type) (2)
 - S-BUS, 2.0 Vp-p -0.5 V, 75 Ω
- A, B output:
 - OUT connectors (BNC type) (8; 4 for each channel)
 - S-BUS, 2.0 Vp-p ±0.5 V, 75 Ω
- Cable length:
 - 500 m max. (When using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

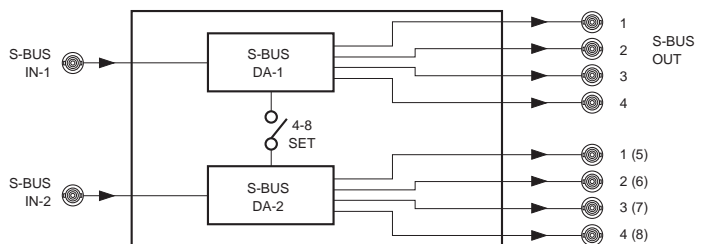
General

- Power requirements:
 - +5 V DC: 0.55 A (supplied from the PFV-L Series Interface Unit)
- Operating temperature:
 - 5 to 40 °C (41 to 104 °F)
- Operating humidity:
 - 10 to 90% (no condensation)
- Dimensions
 - Board (H x D):
 - 77 x 267 mm
 - (3 1/8 x 10 5/8 inches)
 - Connector panel (W x H):
 - 33 x 85 mm
 - (1 5/16 x 3 3/8 inches)
- Mass
 - Board:
 - Approx. 100 g (4 oz)
 - Connector panel:
 - Approx. 100 g (4 oz)

Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual



Rear Panel



Interface Processor D Series

HDTV

PFV-HD50A	100
PFV-HD300A	101
HKPF-101	102
HKPF-102	103
HKPF-103M	104
HKPF-105M	105
HKPF-106M	106
HKPF-1125A	107
HKPF-525V	109
HKPF-525AV	110
HKPF-D270	111
HKPF-E270	113
HKPF-9000	115
HKDV-900	116

PFV-HD50A HD Digital Video Interface Unit

HKPF Series boards provide a range of audio and video signal processing and distribution functions for HDTV signals. The PFV-HD50A HD digital video interface unit accommodates up to four of these boards, providing an interface for HDTV system connections. The interface unit supplies power to the boards, an optional BKPF-PS50A backup power supply can be installed for critical applications. The PFV-HD50A mounts into a standard 19-inch rack and is 3U high.

Features

* Accommodates and powers four function boards *
Accepts all Sony HKPF boards * Redundant power supply option

Supplied Accessories

Operation manual (1)
Installation manual (1)

Optional Accessories

BKPF-PS50A Backup Power Supply Unit
RMM-30 Rack Mount Rail

Optional Boards

HKPF-101 HD A to D Converter Board
HKPF-102 HD D to A Converter Board
HKPF-103M HD Digital Video Distribution Board
HKPF-105M HD Audio/video Multiplexer Board
HKPF-106M HD Audio/Video Demultiplexer Board
HKPF-D270 HDCAM decoder board
HKPF-E270 HDCAM encoder board
HKPF-525AV HD-SD downconverter board
HKPF-525V HD-SD downconverter board
HKPF-1125A HD up-converter board
HKPF-9000 Multi-format converter
BKPF-R70A Routing Switcher Controller Board

Optional Software

BZR-IF310 S-BUS SUB-NET Controller Software

Specifications

Output

STATUS OUT:
D-sub 25-pin connector (1)

General

Power requirements:
100 to 240 V AC, 50/60 Hz
Power consumption:
1.8 to 0.9 A
Maximum power supply capacity:
+5 V DC: max. 8 A
For installed boards -5 V DC: max. 8 A
Operating temperature:
5 to 40 °C (41 to 104 °F)
Storage temperature:
-20 to 60 °C (-4 to 140 °F)
Operating humidity:
10 to 90%
Dimensions (W x H x D)
424 x 132 x 428 mm
(16 3/4 x 5 1/4 x 16 7/8 inches)
Mass:
Approx. 8 kg (17 lb 10 oz)
(not including the optional boards)

The total power consumption of the four installed function boards should not exceed 8 at 5 V and 8 at -5 V.



Rear Panel

PFV-HD300A HD Digital Video Interface Unit

HKPF Series boards provide a range of audio and video signal processing and distribution functions for HDTV signals. The PFV-HD300A HD digital video interface unit accommodates up to 14 of these boards, providing an interface for HDTV system connections. The interface unit supplies power to the boards, an optional HKPF-PS300 backup power supply can be installed for critical applications. The PFV-HD300A mounts into a standard 19-inches rack and is 7U high.

Features

*Houses up to 14 HKPF series modules *Power supply capacity increase to 31A maximum for +5V DC *Standard 19-inches rack mountable *Redundant power supply option (HKPF-PS300)

Supplied Accessories

Operation Manual (1)

Installation Manual (1)

Optional Boards

HKPF-101 HD A to D Converter Board

HKPF-102 HD D to A Converter Board

HKPF-103M HD Digital Video Distribution Board

HKPF-105M HD Audio/video Multiplexer Board

HKPF-106M HD Audio/Video Demultiplexer Board

HKPF-1125A HD up-converter board

HKPF-525AV HD-SD downconverter board

HKPF-525V HD-SD downconverter board

HKPF-D270 HDCAM decoder board

HKPF-E270 HDCAM encoder board

BKPF-R70A Routing Switcher Controller Board

Optional Software

BZR-IF310 S-BUS SUB-NET Controller Software

Optional Peripherals

HKPF-9000 Multi-format converter

Specifications

Outputs

STATUS OUT:

D-sub 25-pin, female (1)

General

Power requirements:

100 to 240 V AC, 50/60Hz

Power consumption:

5.0 to 2.0 A

Power supply capacity

+5 V DC: 31 A max., -5 V DC: 23 A max.

Operating temperature:

5 to 40 °C (41 to +104 °F)

Performance guaranteed temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 60 °C (-4 to 140 °F)

Operating humidity:

10 to 90% (No Condensation)

Dimensions (W x H x D):

424 x 310 x 460 mm

(16 3/4 x 12 1/4 x 18 1/8 inches)

Mass:

Approx. 18 kg (39 lb 11 oz)

(Not including the optional boards)



Rear Panel

HKPF-101 HD A to D Converter Board

The HKPF-101 HD A to D converter board converts an HD component analog video signal to an HD component serial digital video signal. The input signal can be either in Y/PB /PR or RGB format. Four outputs of the converted signal are provided. The HKPF-101 is switchable to operate between 1080 and 1035 active lines and automatically switches between 59.94 and 60.00 Hz field rate operation.

Features

- * Converts an HD component analog signal to an HD component serial digital signal
- * Supports ISR

The HKPF Series function boards install in the PFV-HD Series Interface Units together with the BKPF Series function boards.

Applicable Models

PFV-HD50A HD Digital Video Interface Unit

Specifications

Inputs/outputs

Video inputs:

- ANALOG IN Y/G, PB /B, and PR /R connectors (BNC type) (1 each)
- HD component analog video signals (SMPTE240M/274M (59.94 or 60.00 Hz standard) 75 Ω

Video outputs:

- DIGITAL OUT 1, 2, 3, and 4 connectors (BNC) (1 each)
- HD component serial digital video signal conforming to SMPTE292M, 1.5 Gb/s (BTA S-004B)

Output level:

- 0.8 Vp-p ±10%, 75 Ω

Output impedance:

- 75 Ω, unbalanced

Return loss:

- 15 dB or more (5 to 750 MHz)
- 10 dB or more (750 MHz to 1.5 GHz)

Rise/fall time:

- 270 ps or less, 20% to 80%

Jitter:

- 270 ps or less

Data rate:

- 1.4835 GHz or 1.485 GHz

Delay time:

- 1500 ns or less

ISR output information

- Status messages: 1 item
- Setup messages: 3 items

General

Power requirements:

- +5.0 V DC: 1.3 A, -5.0 V DC: 700 mA (Supplied from the PFV-HD300A/HD50A Interface Unit)

Power consumption:

- Approx. 11 W

Operating temperature:

- 5 to 40 °C (41 to 104 °F)

Dimensions

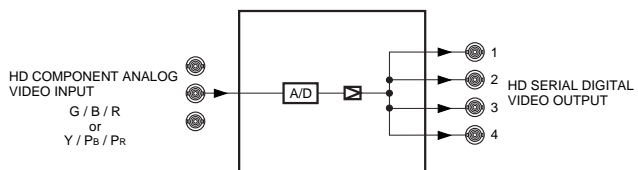
- Board (H x W):
194 x 310 mm
(7 3/4 x 12 1/4 inches)
- Connector panel (H x D x W):
218 x 98 x 25 mm
(8 5/8 x 3 7/8 x 1 inches)

Mass

- Board:
Approx. 700 g (1 lb 8 oz)
- Connector panel:
Approx. 200 g (7 oz)



Rear Panel



Interface Processor D Series

HKPF-102 HD D to A Converter Board

The HKPF-102 HD D to A converter board converts an HD component serial digital video signal to an HD component analog video signal. The input is switchable to accept either a Y/PB /PR or RGB format signal. Two sets of outputs are provided. The HKPF-102 automatically switches between 1080 and 1035 active lines and 59.94 or 60.00 Hz field rate operation.

Features

- * Converts an HD component serial digital signal to an HD component analog signal
- * Supports ISR

The HKPF Series function boards install in the PFV-HD Series Interface Units together with the BKPF Series function boards.



Applicable Models

PFV-HD50A HD Digital Video Interface Unit

Specifications

Inputs/outputs

Video input:

DIGITAL IN connector (BNC type) (1)
 HD component serial digital video signal conforming to SMPTE292M, 1.5 Gb/s (BTA S-004B)

Input impedance:

75 Ω, unbalanced

Return loss:

15 dB minimum (5 to 750 MHz)
 10 dB minimum (750 MHz to 1.5 GHz)

Cable length:

100 m max. (when using 5C-FB coaxial cable)

Data rate:

1.4835 GHz or 1.485 GHz

Video outputs:

ANALOG OUT Y/G, PB/B, and PR/R connectors (BNC type) (2 sets)
 HD component analog video signal (SMPTE240M/274M (59.94 or 60.00 Hz) standard)

Output impedance:

75 Ω, unbalanced

Output level:

1.0 Vp-p ±1% (Y, R, G, B)
 0.7 Vp-p ±1% (PB, PR)

Frequency characteristics:

±0.3 dB (60 Hz to 20 MHz)
 ±0.7 dB (20 to 30 MHz)

Sync signal:

ANALOG OUT SYNC connector (BNC type) (1)
 Conforming to SMPTE240M/274M (59.94 or 60.00 Hz) standard.

Impedance:

75 Ω, unbalanced

Level:

0.6 Vp-p ±1%

Delay time:

1000 ns or less

ISR output information:

Status messages: 2 items
 Setup messages: 3 items

General

Power requirements:

+5.0 V DC: 1.4 A, -5.0 V DC: 700 mA
 (Supplied from the PFV-HD300A/HD50A Interface Unit)

Power consumption:

Approx. 10 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Dimensions

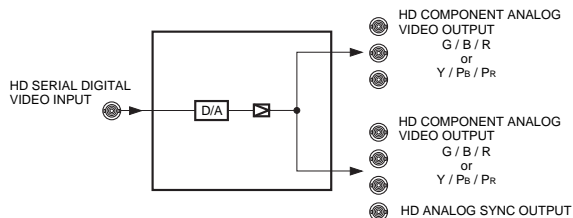
Board (H x W):
 194 x 310 mm
 (7 3/4 x 12 1/4 inches)
 Connector panel (H x D x W):
 218 x 98 x 25 mm
 (8 5/8 x 3 7/8 x 1 inches)

Mass

Board:
 Approx. 700 g (1 lb 8 oz)
 Connector panel:
 Approx. 200 g (7 oz)



Rear Panel



HKPF-103M HD Digital Video Distribution Board

The HKPF-103M HD digital video distribution board accepts an HD component serial digital video input signal and distributes it to six outputs. Automatic equalization is provided for input cable lengths of up to 100 m (with Fujikura 5C-FB or PD-3709 Cooper RG-6/U or equivalent cable).

Features

- * Accepts an SMPTE291M/292M/299M format input signal
- * Automatic equalization for input cable lengths of up to 100 m
- * Six distribution outputs
- * Support SMPTE292M formats * 1035(1125)/60i, 59.94i * 1080(1125)/60i, 59.94i, 50i * 1080(1125)/30PsF, 29.976PsF, 25PsF, 24PsF, 23.976PsF * 720(750)/60P, 59.94P
- * Auto selection of SMPTE292M video formats
- * Format indication on the front panel
- * Status output

The HKPF Series function boards install in the PFV-HD Series Interface Units.



Applicable Models

PFV-HD50A HD Digital Video Interface Unit

Specifications

Inputs/outputs

Digital signal input:

- DIGITAL IN connector (BNC type) (1)
- HD component serial digital signal conforming to SMPTE291M/292M/299M

Input impedance:

75 Ω, unbalanced

Input return loss:

15 dB or more (5 MHz to 1.485 GHz)

Transmission loss:

20 dB or less (at 742.5 MHz)

Cable length:

- 100 m max. (When using Fujikura 5C-FB or PD-3079 COOPER RG-6/U type Super Low Loss Digital Video Coax or equivalents)

Digital signal outputs:

- DIGITAL OUT connectors (BNC type) (6)
- HD component serial digital signals conforming to SMPTE291M/292M/299M

Output signal amplitude:

800 m Vp-p ±10% (at 75 Ω)

Output impedance:

75 Ω, unbalanced

Output return loss:

15 dB or more (5 MHz to 1.485 GHz)

Jitter:

- Within 673 ps (timing jitter)
- Within 135 ps (alignment jitter)

Digital input/output system delay:

900 ns or less

General

Power requirements:

- +5 V DC: 1.4 A, -5 V DC: 1.2 A
- (Supplied from the PFV-HD300A/HD50A Interface Unit)

Power consumption:

Approx. 14 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 55 °C (-4 to 131 °F)

Humidity:

10 to 90% (without condensation)

Dimensions

Board (H x W):

194 x 310 mm
(7 3/4 x 12 1/4 inches)

Connector panel (H x D x W):

218 x 98 x 25 mm
(8 5/8 x 3 7/8 x 1 inches)

Mass

Board:

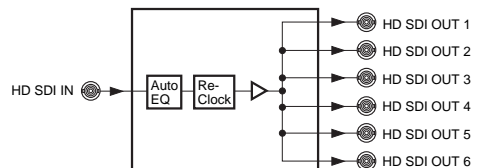
700 g (1 lb 8.7 oz)

Connector panel:

300 g (11 oz)



Rear Panel



HKPF-105M HD Audio/video Multiplexer Board

The HKPF-105M is a video/audio multiplexer board that multiplexes four AES/EBU format digital audio signals (8 channels) with an SMPTE291M/292M/299M format component serial digital video signal. Two outputs of the multiplexed signal are provided. By cascading two HKPF-105M boards, a further four AES/EBU signals can be multiplexed onto one HD signal, making a total of eight pairs/sixteen channels. Automatic equalization is provided for input cable lengths of up to 100 m (5C-FB or PD-3709 Cooper RG-6/U cable or equivalents).



Features

- * Multiplexes two AES/EBU signals with an HD component serial digital video signal
- * Selection of the audio group to be multiplexed
- * Audio delay function - one video frame
- * Support SMPTE292M formats
- * 1035(1125)/60i, 59.94i * 1080(1125)/60i, 59.94i, 50i * 1080(1125)/30PsF, 29.976PsF, 25PsF, 24PsF, 23.976PsF
- * 720(750)/60P, 59.94P * Auto selection of SMPTE292M video formats
- * Format indication on the front panel

Status output

The HKPF Series function boards install in the PFV-HD Series Interface Units.

Applicable Models

PFV-HD50A HD Digital Video Interface Unit

Specifications

Inputs/outputs

Digital video signal input:

- DIGITAL IN VIDEO connector (BNC type) (1)
- HD component serial digital signal conforming to SMPTE291M/292M/299M

Input impedance:

75 Ω, unbalanced

Input return loss:

15 dB or more (5 MHz to 1.485 GHz)

Transmission loss:

20 dB or less (at 742.5 MHz)

Cable length:

100 m max. (When using a 5C-FB coaxial cable or PD-3079 COOPER RG-6/U type Super Low Loss Digital Video Coax or equivalents)

Digital audio signal inputs:

- DIGITAL IN AUDIO connectors (BNC type) (4)
- AES/EBU-format signal
- 75 Ω, 1 Vp-p, unbalanced

Digital signal outputs:

- DIGITAL OUT connectors (BNC type) (2)
- HD component serial digital signal conforming to SMPTE291M/292M/299M

Output signal amplitude:

800 m Vp-p ±10% (at 75 Ω)

Output impedance:

75 Ω, unbalanced

Output return loss:

15 dB or more (5 MHz to 1.485 GHz)

Jitter:

- Within 673 ps (timing jitter)
- Within 135 ps (alignment jitter)

Audio delay

Setting method:

Delay range is set by the on-board rotary switch; the offset delay time is set by the on-board DIP switch

Variable range:

0 to 157 samples

Offset delay time:

0 or 1 frame

Digital input/output system delay

Video:

1.6 μs (without lip-sync)

General

Power requirements:

+5 V DC: 1.6 A, -5 V DC: 1.3 A
(Supplied from the PFV-HD300/HD50A Interface Unit)

Power consumption:

Approx. 15 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 55 °C (-4 to 131 °F)

Humidity:

10 to 90 % (without condensation)

Dimensions:

Board (H x W):

194 x 310 mm
(7 3/4 x 12 1/4 inches)

Connector panel (H x D x W):

218 x 98 x 25 mm
(8 5/8 x 3 7/8 x 1 inches)

Mass

Board:

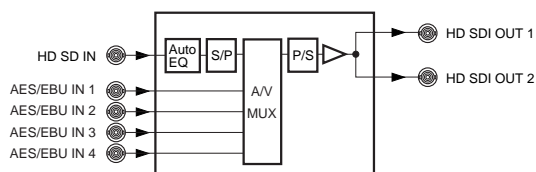
700 g (1 lb 8.7 oz)

Connector panel:

300 g (11 oz)



Rear Panel



HKPF-106M HD Audio/Video Demultiplexer Board

The HKPF-106M is a video/audio demultiplexer board that demultiplexes four AES/EBU-format digital audio signals from a multiplexed SMPTE291M/292M/299M component serial digital video signal. The input video signal is distributed to two outputs. Up to eight pairs/sixteen channels of audio can be separated from a multiplexed HD component serial digital video signal by connecting two HKPF-106M boards in cascade.

Features

- * Demultiplexes and outputs the AES/EBU digital audio signals from an HD component serial digital video signal *
- Selection of the audio groups (1-8 or 9-16) to be demultiplexed *
- Audio output channel pairs interchangeable *
- Support SMPTE292M formats * 1035 (1125)/60i, 59.94i * 1080(1125)/60i, 59.94i, 50i * 1080(1125)/30PsF, 29.976PsF, 25PsF, 24PsF, 23.976PsF * 720(750)/60P, 59.94P *
- Auto selection of SMPTE292M video formats *
- Format indication on the front panel *

Status output

The HKPF Series function boards install in the PFV-HD Series Interface Units.



Applicable Models

PFV-HD50A HD Digital Video Interface Unit

Specifications

Inputs/outputs

Digital video signal input:

- DIGITAL IN connector (BNC type) (1)
- HD component serial digital signal conforming to SMPTE291M/292M/299M

Input impedance:

75 Ω, unbalanced

Input return loss:

15 dB or more (5 MHz to 1.485 GHz)

Transmission loss:

20 dB or less (at 742.5 MHz)

Cable length:

- 100 m max. (When using a 5C-FB coaxial cable or PD-3079 COOPER RG-6/U type Super Low Loss Digital Video Coax or equivalent)

Digital audio signal outputs:

- DIGITAL OUT AUDIO connectors (BNC type) (4)
- AES/EBU-format digital audio signal 75 Ω, 1 Vp-p, unbalanced

Digital video signal outputs:

- DIGITAL OUT VIDEO connectors (BNC type) (2)
- HD component serial digital signal conforming to SMPTE291M/292M/299M

Output signal amplitude:

800 m Vp-p ±10% (at 75 Ω)

Output impedance:

75 Ω, unbalanced

Output return loss:

15 dB or more (5 MHz to 1.485 GHz)

Jitter:

- Within 673 ps (timing jitter)
- Within 135 ps (alignment jitter)

Digital input/output system delay

Video:

1.3 μs (without lip-sync)

General

Power requirements:

- +5 V DC: 1.5 A, -5 V DC: 1.2 A (Supplied from the PFV-HD300A/HD50A Interface Unit)

Power consumption:

Approx. 15 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 55 °C (-4 to 131 °F)

Humidity:

10 to 90% (without condensation)

Dimensions

Board (H x W):

- 194 x 310 mm (7 3/4 x 12 1/4 inches)

Connector panel (H x D x W):

- 218 x 98 x 25 mm (8 5/8 x 3 7/8 x 1 inches)

Mass

Board:

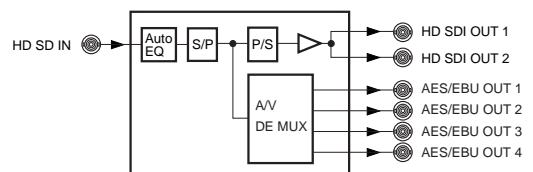
700 g (1 lb 8.7 oz)

Connector panel:

300 g (11 oz)



Rear Panel



HKPF-1125A HD up-converter board

The HKPF-1125A is a 525-line or a 625-line to 1125-line up-converter with an auto colorimetry selection capability and selectable output modes. To produce optimum image quality, it also features a motion adaptive conversion mode, anti image enhancer, colorimetry and gamma correction functions. The HKPF-1125A accepts inputs in conventional NTSC composite analog or NTSC composite serial digital or 525/625 component serial digital signal format, and provides three HD serial digital outputs to the 1125-line interlaced HDTV standard. The 1125 output can be in the 1035 or 1080 active line format.

Features

- *Up-converts a 625 component serial digital, a 525 component or NTSC composite serial digital, or an NTSC composite analog video signal to the 1125-line HDTV standard
- *525/625 Black Burst or 1125 Tri-level Sync input
- *Three distribution output of HD SDI with embedded audio
- *1035 or 1080 active lines output switchable (for 525 input only)
- *Auto colorimetry selection between 1035 and 1080 active lines
- *Aspect ratio modes selectable from Squeeze, Letter Box and Edge Crop
- *Motion adaptive and non-adaptive conversion modes selectable from Frame/Field adaptive, Field fixed and Frame fixed
- *Anti Image Enhancer control
- *Gamma Correction control
- *Controlled from an optional HKDV-503/900 Digital Video Controller via RS-422 (GPI also provided)
- *Provides color matt

The HKPF Series function boards install in the PFV-HD Series Interface Units.

Applicable Models

PFV-HD50A HD Digital Video Interface Unit

Supplied Accessories

- Operation manual (1)
- Installation manual (1)
- Slot number label (1)



Rear Panel

Interface Processor D Series

Specifications

Inputs/outputs

Digital signal input:

VIDEO IN SDI connector (BNC type) (1),
NTSC composite or 525/625 component
serial digital signal with embedded audio
conforming to SMPTE259M-A/C (ITU-R
BT.601/BT.656), 270 Mb/s, 143 Mb/s, 75 Ω ,
unbalanced

Cable length:

200 m max. (With Belden 8281, Fujikura
5C2V or equivalent coaxial cable)

Input return loss:

15 dB or more (5 MHz to 270 MHz)

Analog signal input:

VIDEO IN ANALOG connector (BNC type)
(1),
1.0 Vp-p, 75 Ω , unbalanced

Reference input:

REF IN connector (BNC type) (1), 1125
tri-level sync signal conforming to
SMPTE274M or 525/625 Black Burst signal

Digital signal outputs:

DIGITAL OUT 1,2,3 connector (BNC type)
(3),
HD serial digital signal with embedded audio
conforming to SMPTE292M, BTA S-004B,
800 m Vp-p \pm 10%, 75 Ω , unbalanced

Output return loss:

15 dB or more (5 MHz to 1.5 GHz)

Reference output:

Loop-through output connector (BNC type)
(1),
With 75 Ω termination switch

General

Power requirements

+5 V DC: 1.9A, -5 V DC: 1.6 A

(Supplied from a PFV-HD300A Interface Unit)

Operating temperature

5 to 40 °C (41 to 104 °F)

Storage temperature

-20 to 60 °C (-4 to 140 °F)

Operating humidity

10 to 90% (no condensation)

Dimensions

Board (H x W):

195 x 310 mm

(7 3/4 x 12 1/4 inches)

Connector panel (H x W):

195 x 75 mm

(1 1/2 x 3 inches)

Mass

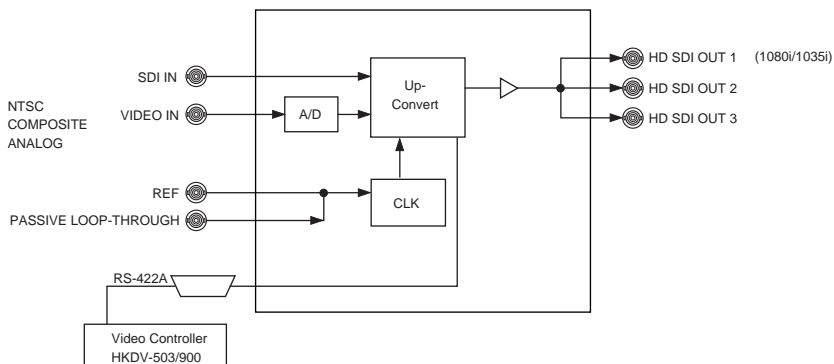
Board:

Approx. 1.5 kg (3 lb 5 oz)

Connector panel:

Approx. 200 g (7 oz)

Service Parts: Maintenance Manual, Extension Board



HKPF-525V HD-SD downconverter board

The HKPF-525 HD downconverter board converts a HD component serial digital video signal to a SD component serial digital signal and distributes it to four outputs. The 525-line component output signal format is selectable to 4:2:2 Y/B-Y/R-Y, 4:4:4 Y/B-Y/R-Y or 4:4:4 GBR. In the case of 4:4:4 format signals, only two outputs are available.

Features

- * Downconverts an HD serial digital video signal to a SD component serial digital signal
- * Support 1080 (1035) i to 485i at 59.94 Hz and 1080i to 576i at 50 Hz conversion
- * Output signal aspect ratio selectable: squeeze, edge crop, semi letter box (13:9, 14:9) and letter box (16:9)
- * Minimum delay/frame delay selectable
- * Remote control from HKDV-503 digital video controller
- * Parallel alarm output

The HKPF Series function boards install in the PFV-HD Series Interface Units together with the BKPF Series function boards.

Applicable Models

PFV-HD50A HD Digital Video Interface Unit

Specifications

Inputs/outputs

Digital video signal input:

- DIGITAL IN connector (BNC type) (1)
- HD component serial digital video signal conforming to SMPTE292M, 1.5 Gb/s (BTA S-004B)

Input impedance:

75 Ω, unbalanced

Input return loss:

- 15 dB minimum (5 to 750 MHz)
- 15 dB minimum (750 MHz to 1.5 GHz)

Cable length:

100 m max. (When using a 5C-FB coaxial cable)

Data rate:

1.4835 GHz/1.485 GHz

Remote control signals:

- REMOTE IN connector (D-sub 9-pin) (1)
- RS-422

Digital video outputs:

- DIGITAL OUT 1, 2, 3, and 4 (BNC type) (1 each)
- 525/625-line component serial digital video signal (switchable between Y/PB /PR and GBR)

Supported formats (selectable):

- 525/625 4:2:2 Y/B-Y/R-Y component serial digital video
- 525/625 4:4:4 Y/B-Y/R-Y component serial digital video
- 525/625 4:4:4 GBR component serial digital video

Three selectable modes (squeeze, edge crop, and letter box)

Adjustable delay range:

- Minimum Delay Mode
- 525: 42 H -1 ~ +100 H
- 625: 50 H -1 ~ +100 H
- Frame Delay Mode
- 525: 525 H ±5 H
- 625: 625 H ±5 H

Adjustable parameters:

- Detail gain, detail frequency, level depend., crispness, H/V ratio, limit level, gamma

General

Power supply:

- +5.0 V DC: 2.0 A, -5.0 V DC: 1.0 A (Supplied from the PFV-HD300A/HD50A Interface Unit)

Power consumption:

Approx. 15 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Dimensions:

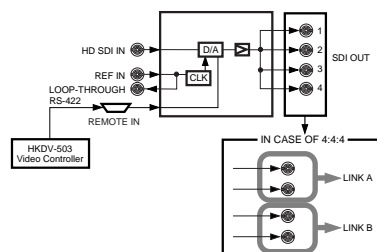
- Board (H x W): 194 x 310 mm (7 3/4 x 12 1/4 inches)
- Connector panel (H x D x W): 218 x 98 x 25 mm (8 5/8 x 3 7/8 x 1 inches)

Mass

- Board: Approx. 1500 g (1 lb 8 oz)
- Connector panel: Approx. 200 g (7 oz)



Rear Panel



HKPF-525AV HD-SD downconverter board

The HKPF-525 HD downconverter board converts a HD component serial digital video signal to a SD component serial digital signal and distributes it to four outputs. The 525-line component output signal format is selectable to 4:2:2 Y/B-Y/R-Y, 4:4:4 Y/B-Y/R-Y or 4:4:4 GBR. In the case of 4:4:4 format signals, only two outputs are available.

Features

- * Downconverts an HD serial digital video signal to a SD component serial digital signal
- * Support 1080 (1035) i to 485i at 59.94 Hz and 1080i to 576i at 50 Hz conversion
- * Output signal aspect ratio selectable: squeeze, edge crop, semi letter box (13:9, 14:9) and letter box (16:9)
- * Minimum delay/frame delay selectable
- * Remote control from HKDV-503 digital video controller
- * Passes embedded audio
- * Parallel alarm output



The HKPF Series function boards install in the PFV-HD Series Interface Units together with the BKPF Series function boards.

Applicable Models

PFV-HD50A HD Digital Video Interface Unit

Specifications

Inputs/outputs

Digital video signal input:

- DIGITAL IN connector (BNC type) (1)
- HD component serial digital video signal conforming to SMPTE292M, 1.5 Gb/s (BTA S-004B)

Input impedance:

75 Ω, unbalanced

Input return loss:

- 15 dB minimum (5 to 750 MHz)
- 15 dB minimum (750 MHz to 1.5 GHz)

Cable length:

100 m max. (When using a 5C-FB coaxial cable)

Data rate:

1.4835 GHz/1.485 GHz

Remote control signals:

- REMOTE IN connector (D-sub 9-pin) (1)
- RS-422

Digital video outputs:

- DIGITAL OUT 1, 2, 3, and 4 (BNC type) (1 each)
- 525/625-line component serial digital video signal (switchable between Y/PB /PR and GBR)

Supported formats (selectable):

- 525/625 4:2:2 Y/B-Y/R-Y component serial digital video
- 525/625 4:4:4 Y/B-Y/R-Y component serial digital video
- 525/625 4:4:4 GBR component serial digital video

Three selectable modes (squeeze, edge crop, and letter box)

Adjustable delay range:

- Minimum Delay Mode
- 525: 42 H -1 ~ +100 H
- 625: 50 H -1 ~ +100 H
- Frame Delay Mode
- 525: 525 H ±5 H
- 625: 625 H ±5 H

Adjustable parameters:

- Detail gain, detail frequency, level depend., crispness, H/V ratio, limit level, gamma

General

Power supply:

- +5.0 V DC: 2.0 A, -5.0 V DC: 1.0 A (Supplied from the PFV-HD300A/HD50A Interface Unit)

Power consumption:

Approx. 15 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Dimensions:

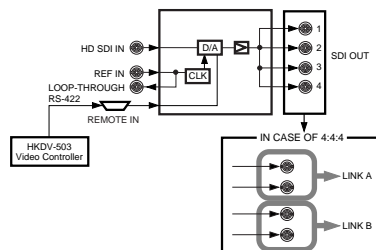
- Board (H x W): 194 x 310 mm (7 3/4 x 12 1/4 inches)
- Connector panel (H x D x W): 218 x 98 x 25 mm (8 5/8 x 3 7/8 x 1 inches)

Mass

- Board: Approx. 1500 g (1 lb 8 oz)
- Connector panel: Approx. 200 g (7 oz)



Rear Panel



Interface Processor D Series

HKPF-D270 HDCAM decoder board

The HKPF-D270 HDCAM Decoder Board is designed to convert SDTI (HDCAM) signals to HD SDI signals (conforming to SMPTE292M/BTA S-004B). The bit rate and the maximum transmission distance are common between SDTI and SDI. This means that by combining HKPF-E270 HDCAM encoder and HKPF-D270 HDCAM decoder boards, existing routing and processing equipment for SDTV serial digital signals can be upgraded to also support HDTV signals. This preserves past investments.

Features

- * Converts 270 Mb/s SDTI (conforming to SMPTE305M) into 1.5 Gb/s HD component serial digital
- * Video with eight channels of embedded audio signal
- * Non-compressed digital audio signals
- * Adopts HDCAM CODEC for superb picture quality and highly efficient compression
- * Automatic detection of 1035/1080 active lines input (59.94 Hz field frequency fixed)
- * Transmission up to 200 m over SDTI (Belden 8281, Fujikura 5C2V or equivalent cable)
- * 1125 or 525 reference input with passive loop-through
- * Error correction function for transmission of SDTI
- * Supports ISR
- * EDH detection

The HKPF Series function boards install in the PFV-HD Series Interface Units together with the BKPF Series function boards.

Applicable Models

PFV-HD50A HD Digital Video Interface Unit

Supplied Accessories

- Operation manual (1)
- Maintenance manual (1)
- Slot number label (1)



Rear Panel

Interface Processor D Series

Specifications

Inputs/outputs

Digital input:

SDTI IN (HDCAM) connector (BNC type)
(1)

HDCAM over SDTI signal conforming to
SMPTE305M

Input impedance:

75 Ω , unbalanced

Input return loss:

15 dB or more (5 MHz to 270 MHz)

Cable length:

HD-SDI: 100 m max. (When using 5CFB
coaxial cable or equivalent cable)

SDTI: 200 m max. (When using a Belden
8281, Fujikura 5C2V or equivalent coaxial
cable)

Active through output:

75 Ω , unbalanced

SYNC signal input:

REF IN connector (BNC type) (1)
1125 or 525 SYNC signal

Input impedance:

75 Ω , unbalanced

Digital signal outputs:

DIGITAL OUT connectors (BNC type) (3)
HD serial digital signal conforming to
SMPTE292M (BTA S-004B)

Output signal amplitude:

800 m Vp-p +/-10% (at 75 Ω)

Output impedance:

75 Ω , unbalanced

Output return loss:

15 dB or more (5 MHz to 741.8 MHz)

10 dB or more (741.8 MHz to 1.484 GHz)

Digital input/output system delay

REF lock:

2 frames (to reference)

Minimum delay:

1.7 frames (to input)

ISR output information

Status messages:

8 items

Set-up messages:

3 items

General

Power requirements:

+5 V DC: 1.9 A, -5 V DC: 1.6 A

(Supplied from the PFV-HD300A/HD50A
Interface Unit)

Power consumption:

Approx. 17.5 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 55 °C (-4 to 131 °F)

Operating humidity:

10 to 90% (without condensation)

Dimensions

Board (H x W):

194 x 310 mm

(7 3/4 x 12 1/4 inches)

Connector panel (H x D x W):

218 x 98 x 25 mm

(8 5/8 x 3 7/8 x 1 inches)

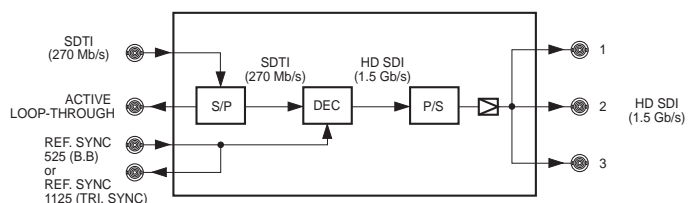
Mass

Board:

Approx. 700 g (1 lb 8.7 oz)

Connector panel:

Approx. 300 g (10.6 oz)



Service Part: Extension Board

HKPF-E270 HDCAM encoder board

The HKPF-E270 HDCAM Encoder Board is designed to convert HD SDI signals (conforming to SMPTE292M/BTA S-004B) to SDTI (HDCAM) signals. The bit rate and the maximum transmission distance are common between SDTI and SDI. This means that by combining HKPF-E270 HDCAM encoder and HKPF-D270 HDCAM decoder boards, existing routing and processing equipment for SDTV serial digital signals can be upgraded to also support HDTV signals. This preserves past investments.

Features

- * Encodes 1.5 Gb/s HD component serial digital video with eight channels of embedded audio signal into 270 Mb/s SDTI (conforming to SMPTE305M) *
- Non-compressed digital audio signals *
- Adopts HDCAM CODEC for superb picture quality and highly efficient compression *
- Automatic detection of 1035/1080 active lines input (59.94 Hz field frequency fixed) *
- Transmission up to 200 m over SDTI (Belden 8281, Fujikura 5C2V or equivalent cable) *
- 1125 or 525 reference input with passive loop-through *
- Error correction function for transmission of SDTI *
- Supports ISR *
- EDH insertion

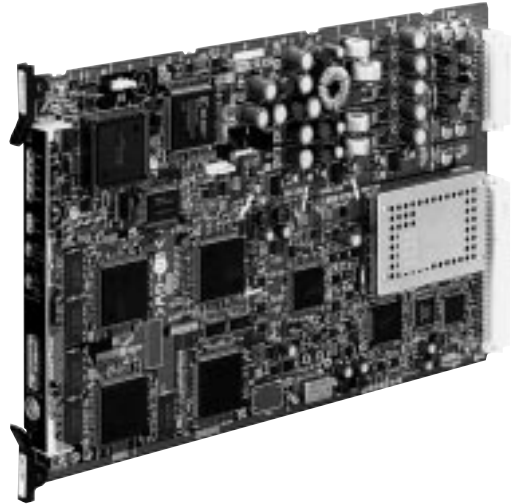
The HKPF Series function boards install in the PFV-HD Series Interface Units together with the BKPF Series function boards.

Applicable Models

PFV-HD50A HD Digital Video Interface Unit

Supplied Accessories

- Operation manual (1)
- Maintenance manual (1)
- Slot number label (1)



Rear Panel

Interface Processor D Series

Specifications

Inputs/outputs

Digital signal input:

DIGITAL IN (HDCAM) connector (BNC type)
(1), HD serial digital signal conforming to
SMPTE291M/292M/299M, BTA-004B/005B/00
6B)

Input impedance:

75 Ω , unbalanced

Input return loss:

15 dB or more (5 MHz to 741.8 MHz)
10 dB or more (741.8 MHz to 1.484 GHz)

Transmission loss:

20 dB or less (at 741.8 MHz)

Cable length:

HD-SDI: 100 m max. (Using 5CFB coaxial
cable or equivalent cable)
SDTI: 200 m max. (Using Belden 8281,
Fujikura 5C2V or equivalent cable)

Active through output:

75 Ω , unbalanced

SYNC signal input:

REF IN connector (BNC type) (1)
1125 or 525 SYNC signal

Input impedance:

75 Ω , unbalanced

Loop-through output:

With 75 Ω termination switch

Digital signal outputs:

SDTI (HDCAM) OUT connectors (BNC type)
(3)
HDCAM over SDTI signal conforming to
SMPTE305M

Output signal amplitude:

800 m Vp-p +/-10% (at 75 Ω)

Output impedance:

75 Ω , unbalanced

Output return loss:

15 dB or more (5 MHz to 270 MHz)

Digital input/output system delay

REF lock:

2 frames (to reference)

Minimum delay:

1.2 frames (to input)

ISR output information

Status messages:

8 items

Set-up messages:

3 items

General

Power requirements:

+5 V DC: 1.8 A, -5 V DC: 1.2 A
(Supplied from the PFV-HD300A/HD50A
Interface Unit)

Power consumption:

Approx. 15 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 55 °C (-4 to 131 °F)

Operating humidity:

10 to 90% (without condensation)

Dimensions

Board (H x W):

194 x 310 mm
(7 3/4 x 12 1/4 inches)

Connector panel (H x D x W):

218 x 98 x 25 mm
(8 5/8 x 3 7/8 x 1 inches)

Mass

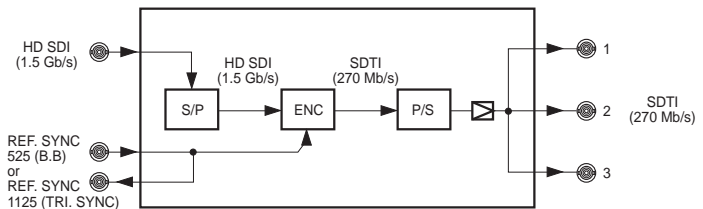
Board:

Approx. 700 g (1 lb 8.7 oz)

Connector panel:

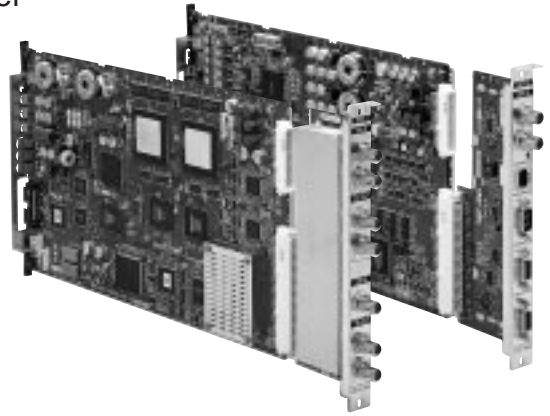
Approx. 300 g (10.6 oz)

Service Part: Extension Board



HKPF-9000 Multi-format converter

The HKPF-9000 multi-format converter converts 1080/24P HDTV format signals to a variety of HD/SD formats. It provides optional functions that convert SDTV or 720P to HDTV 1080, frame rate and aspect ratio. For details, see the Format Conversion Table. The HKPF-9000 is configured as two boards for installation in the PFV-HD Series Interface Units in any combination with other HKPF Series boards.



Features

- *Built-in colorimetry conversion between 601/240M/709
- *Down/up-conversion to/from 720/60P (with optional HZPF-9001 software) *Up-converts SDTV signal to 1080i (with optional HZPF-9002/9003 software) *Line conversion between 1035 and 1080 active lines (with optional HZPF-9006 software) *Built-in image enhancer and output gamma corrector *Selectable aspect ratio conversion (Edge Crop/Squeeze/Letter Box) *Embedded audio and time code are locked to the output signal after video format conversion *Variable image trimming and aspect ratio manipulation, background color selection (with optional HZPF-9005 software) — Remote Control function enables video gain, image enhancer, etc., to be remotely controlled from an optional HKDV-900 HD digital video controller

The HKPF Series function boards install in the PFV-HD Series Interface Units.

Applicable Models

PFV-HD50A HD Digital Video Interface Unit

Supplied Accessories

- Operation manual (1)
- Installation manual (1)

Optional Software

- HZPF-9003 576 Input Option Software
- HZPF-9005 Aspect/Color Processing Option Software
- HZPF-9006 1035/30P Option Software
- HZPF-9001 720P Input Option Software
- HZPF-9002 480 Input Option Software

Optional Peripherals

HKDV-900 HD Digital Video Controller

Specifications

Inputs/outputs

Digital signal inputs:

- SD IN 1,2 connector (BNC type) (2), 525/625 component digital serial signal with embedded audio conforming to SMPTE259M, 270 Mb/s, 0.8 Vp-p, 75 Ω, unbalanced
- HD IN connector (BNC type) (1), HD digital serial signal with embedded audio conforming SMPTE291M/292M/299M, BTA S-004B/005B/006B, 1.4835 Gb/s or 1.485 Gb/s, 75 Ω, unbalanced
- Cable length: 200 m max. (SD) (With Fujikura 5C2V or equivalent coaxial cable) 100 m max. (HD) (with Fujikura 5C-FB or equivalent coaxial cable)
- Input return loss: 15 dB or more (5 MHz to 270 MHz)

Reference input:

- REF IN connector (BNC type) (1), 1125 tri-level sync signal conforming to SMPTE274M or 525/625 Black Burst signal

Digital signal outputs:

- SD OUT1, 2 connector (BNC type) (2), component digital serial signal with embedded audio conforming to SMPTE259M, 270 Mb/s, 0.8 Vp-p ±10%, 75 Ω, unbalanced
- HD OUT1, 2 connector (BNC type) (2), HD digital serial signal with embedded audio conforming SMPTE291M/292M/299M, BTA S-004B/005B/006B, 0.8 Vp-p ±10%, 75 Ω, unbalanced

Output return loss:

- 15 dB or more (5 MHz to 270 MHz)

Jitter:

- Alignment jitter, 740 ps (SD), 135 ps or less (HD)

Rise/fall time:

- 1.5 ns or less (SD), 270 ps or less (HD)

Loop-through output:

- Loop-through output connector (BNC type) (1)

Remote control:

- D-sub 9-pin, female (2)

General

Power requirements:

- +5 V DC: 5.0 A, -5 VDC: 3.0 A (Supplied from PFV-HD Series Interface Unit)

Operating temperature:

- 5 to 40 °C (41 to 104 °F)



Rear Panel



Rear Panel

Storage temperature:

- 20 to 60 °C (-4 to 140 °F)

Operating humidity:

- 10 to 90% (no condensation)

Dimensions

- Board (H x W): 194 x 310 mm (7 3/4 x 12 1/4 inches)
- Connector panel (H x D x W): 218 x 98 x 25 mm (8 5/8 x 3 7/8 x 1 inches)

Mass

- Board: Approx. 700 g (1 lb 3 oz)
- Connector panel: Approx. 600 g (1 lb 5 oz)

Format Conversion Table

1080	720P	60i	50/54i	50i	30P/30F	20/30P/30F	24P/24F	22/28P/28F	1080	720	480	576i
60	⊙								HZPF-9002 ⊙			
50									HZPF-9006 ⊙	⊙		
30P/30F	HZPF-9006 ⊙				HZPF-9006 ⊙				HZPF-9006 ⊙			⊙
24P/24F									HZPF-9006 ⊙	HZPF-9006 ⊙	HZPF-9006 ⊙	HZPF-9006 ⊙
22P/22F									HZPF-9006 ⊙			
1080	HZPF-9006 ⊙								HZPF-9006 ⊙			
720	50/54P	HZPF-9006 ⊙							HZPF-9006 ⊙	HZPF-9006 ⊙	HZPF-9006 ⊙	HZPF-9006 ⊙
480	50/54P	HZPF-9006 ⊙							HZPF-9006 ⊙	HZPF-9006 ⊙	HZPF-9006 ⊙	HZPF-9006 ⊙
576	50								HZPF-9006 ⊙			

HKPF-9000 Standard ⊙ 1 Frame delay ⊙ A Frame ⊙ 2 Frame delay ⊙ B Frame ⊙ 3 Frame delay ⊙ A Frame

HKDV-900 HD Digital Video Controller

The HKDV-900 digital video controller connects to HDW-F500/500/2000 HD digital VTRs and controls the HD/SD output video signals and the image enhancer of the down converter built into these VTR. It can also be used as a remote controller for the HKPF-9000 multi-format converter, HKPF-1125A 525/625 to HD up-converter and the 525A/AV NTSC down-converter board installed in PFV-HD Series Interface Units. The HKDV-900 can be connected to a maximum of four devices (VTR, HKPF-9000). Only one device can be controlled at a time.



Rear Panel

Features

- *Remote control of the HKPF-9000 multi-format converter
- *Controls the HKPF-525V/AV HD-SD down-converter board, the HKPF-1125A 525-HD up-converter board and the HKDV-501 HD/SD down-converter board
- *Installs in a 19-inches rack unit

Applicable Models

- HDW-2000 HDCAM Recorder
- HDW-M2000 HDCAM Recorder
- HDW-M2000P HDCAM Recorder
- HDW-M2100 HDCAM Player
- HDW-M2100P HDCAM Player
- HKPF-9000 Multi-format converter

Supplied Accessories

- PSW 4x16 Screws, for Rack mounting (4)
- Operation manual (1)
- Installation manual (1)

Optional Accessories

- RCC-15H cables 9-pin/15-pin Remote Control Cable

Specifications

General

- Power requirement: 25 W or less
- Operating temperature: 5 to 40 °C (41 to 104 °F)
- Storage temperature: -20 to 60 °C (-4 to 140 °F)

Operating humidity:

- 20 to 80% (no condensation)

Dimensions:

- 424 x 43.6 x 171 mm
(16 3/4 x 1 3/4 x 6 3/4 inches)

Mass:

- Approx. 2.9 kg (4 oz)

Interface Processor D Series SDTV

SDTV

PFV-D10	118
PFV-D50A	119
PFV-D300	120
BKPF-012A	121
BKPF-021	123
BKPF-205	124
BKPF-206	126
BKPF-300	128
BKPF-301	129
BKPF-350	130
BKPF-351	131

PFV-D10 Digital Video Interface Unit

BKPF Series boards provide a wide range of audio and video signal processing and distribution functions for analog and digital signals. The PFV-D10 digital video interface unit accommodates any one of these boards, providing an interface for system connections. The PFV-D10 supplies power to the board and includes BNC connectors for a looped video reference signal input and S-BUS remote control. The PFV-D10 mounts into a standard 19-inch rack and is 1U high.



Rear Panel

Features

* Accommodates and powers one BKPF Series board *
S-BUS control and reference video connectors

Supplied Accessories

Operation manual (1)
Installation manual (1)

Optional Boards

BKPF-012A 525-line component digital to NTSC composite analog/digital video converter board
BKPF-021 NTSC Composite Digital to 525-Line Component Digital Video Converter Board
BKPF-205 Audio/Video Multiplexer Board
BKPF-206 Audio/Video Demultiplexer Board
BKPF-300 Digital Video Selector Board
BKPF-301 Analog Video Selector Board
BKPF-350 Digital Audio Selector Board
BKPF-351 Analog Audio Selector Board

BKPF-R70A Routing Switcher Controller Board

Optional Software

BZR-IF310 S-BUS SUB-NET Controller Software

Specifications

General

Power requirements:
100 to 240 V AC, 50/60 Hz
Power consumption:
100 V: 0.8 A, 240 V: 0.4 A
Maximum power supply capacity:
+5 V DC: max. 2.4 A
For installed board -5 V DC: max. 2.4 A
Operating temperature:
5 to 40 °C (41 to 104 °F)

Storage temperature:
-20 to 60 °C (-4 to 140 °F)
Operating humidity:
10 to 90%
Dimensions (W x H x D):
424 x 44 x 426 mm
(16 3/4 x 1 3/4 x 16 7/8 inches)
Mass:
Approx. 5 kg (11 lb 4 oz)
(not including the optional boards)

PFV-D50A Digital Video Interface Unit

BKPF Series boards provide a wide range of audio and video signal processing and distribution functions for analog and digital signals. The PFV-D50A digital video interface unit accommodates up to four of these boards, providing an interface for system connections. One of these boards can be a BKPF-500, providing an interface to an ISR system. The PFV-D50A supplies power to the boards, an optional BKPF-PS50A backup power supply can be installed for critical applications. BNC connectors for a looped video reference signal input and S-BUS remote control are provided, together with an ISR Status Out connector. The PFV-D50A mounts into a standard 19-inch rack and is 3U high.



Rear Panel

Features

- * Accommodates and powers four BKPF Series boards *
- S-BUS control and reference video connectors *
- Redundant power supply option * Supports ISR

Supplied Accessories

- Operation manual (1)
- Installation manual (1)

Dimensions (W x H x D)

- 424 x 132 x 428 mm
- (16 3/4 x 5 1/4 x 16 7/8 inches)

Optional Accessories

- RMM-30 Rack Mount Rail

Mass:

- Approx. 8 kg (17 lb 10 oz)
- (not including the optional boards)

Optional Boards

- BKPF-012A 525-line component digital to NTSC composite analog/digital video converter board
- BKPF-021 NTSC Composite Digital to 525-Line Component Digital Video Converter Board
- BKPF-205 Audio/Video Multiplexer Board
- BKPF-206 Audio/Video Demultiplexer Board
- BKPF-300 Digital Video Selector Board
- BKPF-301 Analog Video Selector Board
- BKPF-350 Digital Audio Selector Board
- BKPF-351 Analog Audio Selector Board
- BKPF-R70A Routing Switcher Controller Board

The total power consumption of the four installed function boards should not exceed 8 A at 5 V and 8 A at -5 V.

Optional Software

- BZR-IF310 S-BUS SUB-NET Controller Software

Optional Peripherals

- BKPF-PS50A Backup Power Supply Unit

Specifications

Output

- STATUS OUT:
- D-sub 25-pin

General

- Power requirements:
 - 100 to 240 V AC, 50/60 Hz
- Power consumption:
 - 100 V AC: max. 1.8 A
 - 240 V AC: max. 0.9 A
- Maximum power supply capacity:
 - +5 V DC: max. 8 A
 - For installed boards -5 V DC: max. 8 A
- Operating temperature:
 - 5 to 40 °C (41 to 104 °F)
- Storage temperature:
 - 20 to 60 °C (-4 to 140 °F)
- Operating humidity:
 - 10 to 90%

PFV-D300 Digital Video Interface Unit

BKPF Series boards provide a wide range of audio and video signal processing and distribution functions for analog and digital signals. The PFV-D300 digital video interface unit accommodates up to 14 of these boards, providing an interface for system connections. One of these boards can be a BKPF-500, providing an interface to an ISR system. The PFV-D300 supplies power to the boards, an optional BKPF-PS300 backup power supply can be installed for critical applications. BNC connectors for a looped video reference signal input and S-BUS remote control are provided, together with an ISR Status Out connector. The PFV-D300 mounts into a standard 19-inch rack and is 7U high.

Features

- * Accommodates and powers fourteen BKPF Series boards
- * S-BUS control and reference video connectors *
- Redundant power supply option
- * Supports ISR



Rear Panel

Supplied Accessories

- Operation manual (1)
- Installation manual (1)

Optional Accessories

- RMM-30 Rack Mount Rail

Optional Boards

- BKPF-012A 525-line component digital to NTSC composite analog/digital video converter board
- BKPF-021 NTSC Composite Digital to 525-Line Component Digital Video Converter Board
- BKPF-205 Audio/Video Multiplexer Board
- BKPF-206 Audio/Video Demultiplexer Board
- BKPF-300 Digital Video Selector Board
- BKPF-301 Analog Video Selector Board
- BKPF-350 Digital Audio Selector Board
- BKPF-351 Analog Audio Selector Board
- BKPF-R70A Routing Switcher Controller Board

Optional Software

- BZR-IF310 S-BUS SUB-NET Controller Software

Optional Peripherals

- BKPF-PS300 Backup Power Supply Unit

Specifications

Output

- STATUS OUT:
D-sub 25-pin connector (1)

General

- Power requirements:
100 to 240 V AC, 50/60 Hz

Power consumption:

- 600 VA max.
- Maximum power supply capacity:
+5 V DC: max. 23 A
For installed boards -5 V DC: max. 23 A
- Operating temperature:
5 to 40 °C (41 to 104 °F)
- Storage temperature:
-20 to +60 °C (-4 to +140 °F)
- Operating humidity:
10 to 90%
- Dimensions (W x H x D)
424 x 310 x 450 mm
(16 3/4 x 12 1/4 x 17 3/4 inches)
- Mass:
Approx. 18 kg (39 lb 11 oz)
(not including the optional boards)

The total power consumption of the 14 installed function boards should not exceed 23 A at 5 V and 23 A at -5 V.

BKPF-012A 525-line component digital to NTSC composite analog/digital video converter board

The BKPF-012A converts a 525-line component serial digital video signal into both an NTSC composite serial digital and an NTSC composite analog video signal. Four outputs of the composite serial digital signal and two outputs of the composite analog signal are provided. Four channels of audio embedded in the input signal can be transferred to the composite serial digital outputs. Frame synchronizing to an external video reference signal and an auto-freeze function are provided.

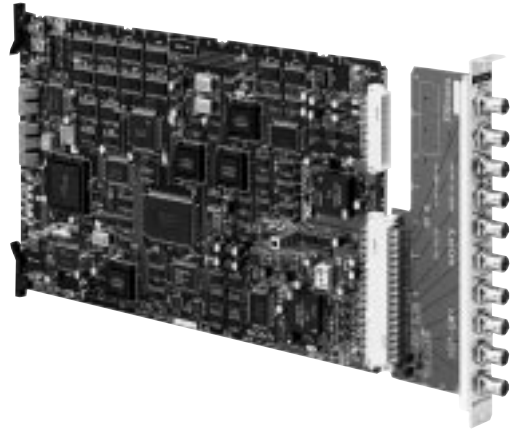
Features

- * Converts a 525-line component serial digital video signal to NTSC composite analog and composite serial digital signals
- * Frame synchronization function
- * Transfers embedded audio signals
- * Supports ISR
- * Supports EDH

The BKPF Series function boards install in both the PFV-D and the PFV-HD Series Interface Units. In a PFV-HD Series Interface Unit, they can be installed together with the HKPF Series function boards.

Applicable Models

PFV-D10 Digital Video Interface Unit
PFV-D300 Digital Video Interface Unit
PFV-D50A Digital Video Interface Unit



Rear Panel

Interface Processor D Series

Specifications

Inputs/outputs

Serial digital input:

- SDI IN connector (BNC type) (1)
- 0.8 Vp-p, 75 Ω

Serial digital outputs:

- Active through-out connector (BNC type) (1)
- 0.8 Vp-p±10%, 75 Ω
- SDI OUT connectors (BNC type) (4)
- 0.8 Vp-p±10%, 75 Ω

Reference video input:

- REF IN connector (BNC type) (1)

Reference video output:

- Loop-through output connector (BNC type) (1)

Analog NTSC outputs:

- ANALOG OUT connectors (BNC type) (2)
- 1.0 Vp-p±3%, 75 Ω

System delay (INPUT mode):

- Approx. 8.5 μs (with DIGITAL H-PHASE "00")
- Approx. 6.5 μs (with ANALOG H-PHASE "00")

Output phase adjustable range
(Comparing the REF signal phase with the output signal phase)
(REF/frame synchronization ON mode)

Serial digital output:

- 0±8.8 μs (in 70 ns steps)

Analog NTSC output:

- 0±8.8 μs (in 17.5 ns steps)
(REF/frame synchronization OFF mode)

Serial digital output:

- Approx. 21 to 37 μs (in 70 ns steps)

Analog NTSC output:

- Approx. 19 to 35 μs (in 17.5 ns steps)

Data transmission

Channel coding:

- Scrambled NRZI

Transmission bit rate:

- Input: 270 Mb/s
- Output: 143 Mb/s

Modulation:

- 0.8 Vp-p

Cable length:

- 200 m max. (When using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

Digital input/output return loss:

- 15 dB or less (5 to 270 MHz)

Signal format

Input:

- 525-line component serial digital signal conforming to SMPTE259M-C (ITU-R BT.601/BT.656), 270 Mb/s

Output:

- NTSC composite serial digital signal conforming to SMPTE259M-A, 143 Mb/s

Video characteristics

Band width:

- 6 MHz

K factor:

- Less than 1%

Signal-to-noise ratio:

- More than 60 dB (5 MHz LPF)

DG:

- Less than 1%

DP:

- Less than 1°

General

Power requirements:

- +5 V DC: 1800 mA, -5 V DC: 700 mA
(Supplied from the PFV-D/PFV-HD Series Interface Unit)

Power consumption:

- 12.5 W

Operating temperature:

- 5 to 40 °C (41 to 104 °F)

Storage temperature:

- 20 to 60 °C (-4 to 140 °F)

Operating humidity:

- 10 to 90% (no condensation)

Dimensions

Board (H x W):

- 195 x 310 mm
(7 3/4 x 12 1/4 inches)

Connector panel (H x W):

- 195 x 25 mm
(7 3/4 x 1 inches)

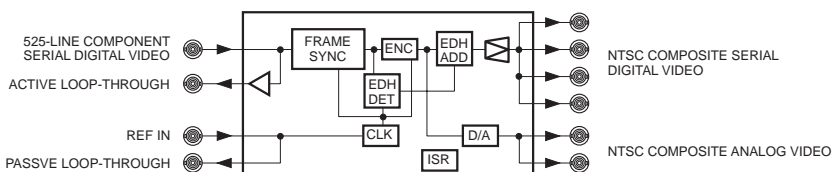
Mass

Board:

- Approx. 600 g (1 lb 5 oz)

Connector panel:

- Approx. 200 g (7 oz)



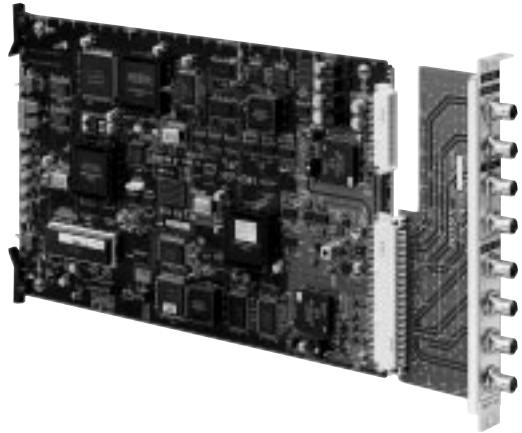
BKPF-021 NTSC Composite Digital to 525-Line Component Digital Video Converter Board

The BKPF-021 converts an NTSC composite serial digital video signal to a 525-line component serial digital video signal with 10-bit resolution. A frame synchronizing function synchronizes the output video signal to either an external reference signal or the input signal.

Features

- * Converts an NTSC composite serial digital video signal to a 525-line component serial digital video signal
- * Phase adjustment of output signal
- * Set-up remove function
- * Auto-freeze function
- * Selection of Y/C separation point
- * Supports ISR
- * Supports EDH

The BKPF Series function boards install in both the PFV-D and the PFV-HD Series Interface Units. In a PFV-HD Series Interface Unit, they can be installed together with the HKPF Series function boards.



Applicable Models

- PFV-D10 Digital Video Interface Unit
- PFV-D300 Digital Video Interface Unit
- PFV-D50A Digital Video Interface Unit

Specifications

Inputs/outputs

- Serial digital input:
 - SDI IN connector (BNC type) (1)
 - 0.8 Vp-p, 75 Ω
 - NTSC composite serial digital signal conforming to SMPTE259M-A, 143 Mb/s
- Cable length:
 - 200 m max. (When using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)
- Serial digital outputs:
 - Active through-out connector (BNC type) (1)
 - 0.8 Vp-p±10%, 75 Ω
 - Serial digital video signal of the same format as that to the input connector
 - SDI OUT connectors (BNC type) (4)
 - 0.8 Vp-p±10%, 75 Ω
 - 525-line component serial digital signal conforming to SMPTE259M-C (ITU-R BT.601/BT.656), 270 Mb/s
- Reference video input:
 - REF IN connector (BNC type) (1)
- Reference video output:
 - Loop-through output connector (BNC type) (1)
- System delay:
 - Approx. 70.5 μs
 - (in INPUT mode, with SYSTEM H-PHASE "00")
- Output phase adjustable range:
 - Coarse adjustment: -4.74 μs to +4.70 μs (-128 CK to +127 CK)
 - in INPUT mode: 0 to +9.44 μs (0 to +255 CK)
 - (1 CK: approx. 37 nsec)

Signal-to-noise ratio:

More than 58 dB DG (10 kHz to video fg.)

General

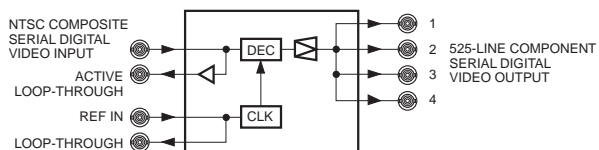
- Power requirements:
 - +5 V DC: 1400 mA, -5 V DC: 600 mA (supplied from the PFV-D/PFV-HD Series Interface Unit)
- Power consumption:
 - 10 W
- Operating temperature:
 - 5 to 40 °C (41 to 104 °F)
- Storage temperature:
 - 20 to 60 °C (-4 to 140 °F)
- Operating humidity:
 - 10 to 90% (no condensation)
- Dimensions
 - Board (H x W):
 - 195 x 310 mm
 - (7 3/4 x 12 1/4 inches)
 - Connector panel (H x W):
 - 195 x 25 mm
 - (7 3/4 x 1 inches)
- Mass
 - Board:
 - Approx. 650 g (1 lb 7 oz)
 - Connector panel:
 - Approx. 200 g (7 oz)



Rear Panel

Video characteristics

- Band width:
 - 6 MHz
- K factor:
 - Less than 1%



BKPF-205 Audio/Video Multiplexer Board

The BKPF-205 is an audio/video multiplexer board that converts four analog audio signals to two AES/EBU digital audio signals. These signals are then multiplexed on to a 525/625 component serial digital or NTSC composite serial digital video signal input to the board. Two outputs of this multiplexed video signal are provided. These outputs support a cable length of 200 m (Belden 8281, Fujikura 5C2V or equivalent cable). Eight analog audio channels can be converted to the AES/EBU format and multiplexed onto one 525/625 component serial digital video signal by cascading two BKPF-205 boards.

Features

- * Converts four analog audio signals to two AES/EBU digital audio signals.
- * Multiplexes the two AES/EBU signals onto a 525/625 component serial digital or NTSC composite serial digital video signal
- * Audio mute function
- * Supports ISR
- * Supports EDH

The BKPF Series function boards install in both the PFV-D and the PFV-HD Series Interface Units. In a PFV-HD Series Interface Unit, they can be installed together with the HKPF Series function boards.

Applicable Models

- PFV-D10 Digital Video Interface Unit
- PFV-D300 Digital Video Interface Unit
- PFV-D50A Digital Video Interface Unit

Optional Accessories

- ECD-C cables XLR-3-Pin Type - XLR-3-Pin Type Digital Audio Interface Cable



Rear Panel

Interface Processor D Series

Specifications

Inputs/outputs

SDI input:

SDI IN connector (BNC type) (1)
NTSC composite or 525/625 component
serial digital signal conforming to
SMPTE259M-A/C (ITU-R
BT.601/BT.656): 143, 270, Mb/s
(Selectable with on-board switch)

Input impedance:

75 Ω

Input return loss:

15 dB or more

Cable length:

200 m max. (When using a Belden
8281, Fujikura 5C2V or equivalent
coaxial cable)

SDI outputs:

SDI OUT connectors (BNC type) (2)
Serial digital video signal of the same
format
as that to the input connector
0.8 Vp-p \pm 10%, 75 Ω

Output return loss:

15 dB or more (5 MHz to 270 MHz)

Analog audio signal inputs:

ANALOG IN AUDIO connectors (4)
XLR-3-31 (female), balanced (electronic
balance)

Input impedance:

600 Ω /20 k Ω (selectable with on board
switch)

Reference input level:

+4 dBm (-10 to +8 dBm continuously
variable)

Conversion characteristics

Quantization:

20 bit linear/48 kHz sampling

Headroom:

20 dB (at operation level)

Frequency response:

20 Hz to 20 kHz within +0.2/-0.3 dB (at
1 kHz standard)

Distortion:

Less than 0.05% (at 1 kHz, reference
level, 30 kHz low-pass)

Signal-to-noise ratio:

More than 106 dB
(Maximum output level, 30 kHz
low-pass)

Crosstalk:

Less than -90 dB (up to 15 kHz)

Input signal common-mode rejection
ratio

More than 80 dB (at 60 Hz)

Phase difference between channels

Within the same board: 0.1° or less (at 1
kHz)

Between the cascaded boards: 6° or
less (at 1 kHz)

Multiplex format:

Conforms to SMPTE 272M

Signal delay:

Component digital: approx. 0.78 μ s

NTSC composite digital: approx. 1.47
 μ s

Analog audio:

Approx. 1.1 ms (at 525/625 component
serial digital)

Approx. 1.3 ms (at NTSC composite
serial digital)

EDH:

Conforms to SMPTE RP165

ISR Output information

Status message:

5 items

Status message:

8 items

General —

Power requirements:

+5 V DC: 610 mA, -5 V DC: 630 mA

(Supplied from the PFV-D/PFV-HD

Series Interface Unit)

Power consumption:

Approx. 6.2 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 60 °C (-4 to 140 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x W):

195 x 310 mm

(7 3/4 x 12 1/4 inches)

Connector panel (H x W):

195 x 25 mm

(7 3/4 x 1 inches)

Mass

Board:

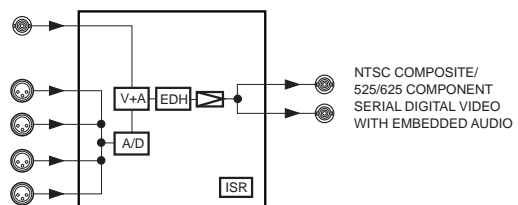
Approx. 530 g (1 lb 3 oz)

Connector panel:

Approx. 180 g (6.3 oz)

NTSC COMPOSITE/
525/625 COMPONENT SERIAL
DIGITAL VIDEO INPUT

ANALOG AUDIO
INPUT



BKPF-206 Audio/Video Demultiplexer Board

The BKPF-206 is an audio/video demultiplexer board that separates the digital audio signals multiplexed onto a component serial digital or NTSC composite serial digital video signal. After demultiplexing, the digital audio signals are converted to analog audio signals and output. A single BKPF-206 board demultiplexes two AES/EBU signals from a 525/625 component serial digital or an NTSC composite serial digital video signal into four analog outputs. Up to four boards can be connected in cascade to demultiplex up to 16 analog audio channels from a 525/625 component serial digital signal.

Features

- * Demultiplexes AES/EBU digital audio signals multiplexed onto a 525/625 component serial digital or NTSC composite serial digital video signal
- * Demultiplexing audio group selection (with a component serial digital video signal input)
- * Supports ISR
- * Supports EDH

The BKPF Series function boards install in both the PFV-D and the PFV-HD Series Interface Units. In a PFV-HD Series Interface Unit, they can be installed together with the HKPF Series function boards.

Applicable Models

- PFV-D10 Digital Video Interface Unit
- PFV-D300 Digital Video Interface Unit
- PFV-D50A Digital Video Interface Unit

Optional Accessories

- ECD-C cables XLR-3-Pin Type - XLR-3-Pin Type Digital Audio Interface Cable



Rear Panel

Interface Processor D Series

Specifications

Inputs/outputs

SDI input:

SDI IN connector BNC type (1)
NTSC composite or 525/625 component
serial digital signal conforming to
SMPTE259M-A/C (ITU-R
BT.601/BT.656): 143, 270, Mb/s
(selectable with on-board switch)

Input impedance:

75 Ω

Input return loss:

15 dB or more

Cable length:

200 m max. (When using a Belden
8281, Fujikura 5C2V or equivalent
coaxial cable)

SDI outputs:

SDI OUT connectors (BNC type) (2)
Serial digital video signal of the same
format as that to the input connector
0.8 Vp- \pm 10%, 75 Ω

Output return loss:

15 dB or more (5 MHz to 270 MHz)

Analog audio signal outputs:

ANALOG OUT AUDIO connectors (4)
XLR-3-32 (female), balanced
(transformerless electronic balanced
differential output)

Output impedance:

Approx. 20 Ω

Reference input level:

+4 dBm (-10 to +8 dBm continuously
variable)

Maximum output level:

+23.5 dBm or more (with a 600 Ω load)
+25.0 dBu or more
(into a high impedance load)

Conversion characteristics

Quantization:

20 bit linear/48 kHz sampling

Headroom:

20 dB (at operation level)

Frequency response:

20 Hz to 20 kHz within +0.2/-0.3 dB (at
1 kHz standard)

Distortion:

Less than 0.05% (at 1 kHz, reference
level, 30 kHz low-pass)

Signal-to-noise ratio:

More than 93 dB
(Maximum output level, 30 kHz
low-pass)

Crosstalk:

Less than -90 dB (up to 15 kHz)

Input signal common-mode rejection ratio:

More than 80 dB (at 60 Hz)

Phase difference between channels:

Within the same board: 0.1° or less (at 1
kHz)

Between the cascaded boards

connected in parallel or cascade: 6° or
less (at 1 kHz)

Deemphasis:

Automatically activated (time constant
50 μ s/15 μ s)

Signal delay:

Component digital: approx. 0.48 μ s

NTSC composite digital: approx. 0.91
 μ s

Analog audio:

Approx. 0.76 ms (at 525/625
component serial digital)

Approx. 0.90 ms (at NTSC composite
serial digital)

EDH:

Conforms to SMPTE RP165

ISR Output information

Status message:

7 items

Status message:

6 items

General

Power requirements:

+5 V DC: 460 mA, -5 V DC: 620 mA

(Supplied from the PFV-D/PFV-HD
Series Interface Unit)

Power consumption:

Approx. 5.4 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Storage temperature:

-20 to 60 °C (-4 to 140 °F)

Operating humidity:

10 to 90% (no condensation)

Dimensions

Board (H x W):

195 x 310 mm

(7 3/4 x 12 1/4 inches)

Connector panel (H x W):

195 x 25 mm

(7 3/4 x 1 inches)

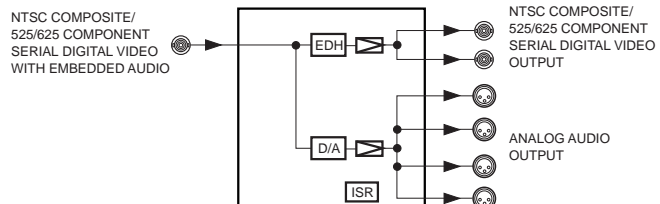
Mass

Board:

Approx. 530 g (1 lb 3 oz)

Connector panel:

Approx. 160 g (6.3 oz)



BKPF-300 Digital Video Selector Board

The BKPF-300 digital video selector board is an eight input to two output switching matrix for component digital signals. Crosspoint information is memorized for 24 hours. Up to 14 BKPF-300 boards can be integrated to form a 112 input, 2 output, and switching matrix.

Features

- * Eight input, two output, switching matrix
- * Simultaneous control of multiple signals with matrix level setting
- * Control from BKS-R Series control units via S-BUS network
- * Supports ISR

The BKPF Series function boards install in both the PFV-D and the PFV-HD Series Interface Units. In a PFV-HD Series Interface Unit, they can be installed together with the HKPF Series function boards.

Applicable Models

- PFV-D10 Digital Video Interface Unit
- PFV-D300 Digital Video Interface Unit
- PFV-D50A Digital Video Interface Unit

Specifications

Inputs/outputs

SDI inputs:

- SDI IN connectors (BNC type) (8)
- NTSC composite or 525/625 component serial digital signal conforming to SMPTE259M-A/C (ITU-R BT.601/BT.656); 143, 270 Mb/s.
- (Selectable with on-board switch)

SDI outputs:

- SDI OUT connectors (BNC type) (2)
- Serial digital video signal of the same format as that to the input connector
- 0.8 Vp-p \pm 10%, 75 Ω

Input/output impedance:

75 Ω

Input/output return loss:

More than 15 dB (at 5 MHz to 270 MHz)

Cable length:

200 m max. (When using a Belden 8281, Fujikura 5C2V or equivalent coaxial cable)

Rise and fall time:

Less than 1.5 ns

ISR output information

- Status messages: 3 items
- Setup messages: 2 items

General

Power requirements:

- +5 V DC, 0.5 A, -5 V DC, 1.0 A
- (Supplied from the PFV-D/PFV-HD Series Interface Unit)

Power consumption:

Approx. 7.5 W

Operating temperature:

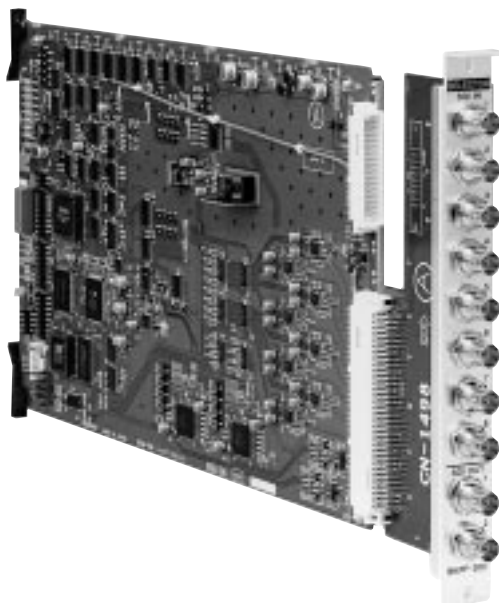
5 to 40 °C (41 to 104 °F)

Dimensions (H x W)

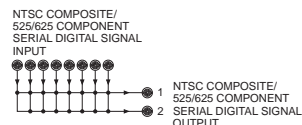
- Board: 195 x 310 mm (7 3/4 x 12 1/4 inches)
- Connector panel: 195 x 25 mm (7 3/4 x 1 inches)

Mass

- Board: Approx. 550 g (1 lb 3 oz)
- Connector panel: Approx. 200 g (7 oz)



Rear Panel



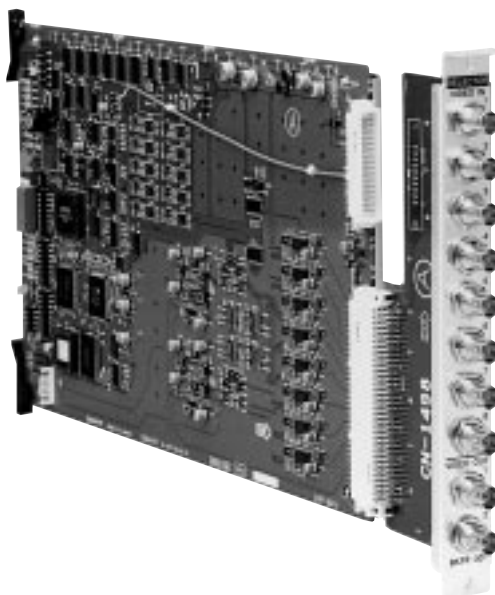
BKPF-301 Analog Video Selector Board

The BKPF-301 analog video selector board is an eight input to two output switching matrix for NTSC/PAL composite analog signals. Cross point information is memorized for 24 hours. Up to four BKPF-301 boards can be integrated to form a 32 input, 2 output, and switching matrix.

Features

- * Eight input, two output, switching matrix
- * Simultaneous control of multiple signals with matrix level setting
- * Control from BKS-R Series control units via S-BUS network
- * Supports ISR

The BKPF Series function boards install in both the PFV-D and the PFV-HD Series Interface Units. In a PFV-HD Series Interface Unit, they can be installed together with the HKPF Series function boards.



Applicable Models

- PFV-D10 Digital Video Interface Unit
- PFV-D300 Digital Video Interface Unit
- PFV-D50A Digital Video Interface Unit

Specifications

Inputs/outputs

Video inputs:

VIDEO IN connectors (BNC type) (8)

Video outputs:

VIDEO OUT connectors (BNC type) (2)

DG:

Less than 0.5% (1 Vp-p, 10 to 90%)

DP:

Less than 0.5° (1 Vp-p, 10 to 90%)

Frequency response:

±0.2 dB (100 kHz to 8 MHz)

Crosstalk:

Less than -50 dB (at 5 MHz)

Signal-to-noise ratio:

Less than 65 dB (5 MHz LPF)

K factor:

Less than 0.5%

Tilt:

Less than 1%

Output gain stability:

±0.1 dB

DC offset:

Less than ±50 mV

Input/output return loss:

More than 40 dB

ISR output information

Status messages:

3 items

Setup messages:

1 item

General

Power requirements:

+5 V DC, 0.5 A, -5 V DC, 1.0 A
(supplied from the PFV-D/PFV-HD Series Interface Unit)

Power consumption:

Approx. 3.5 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Dimensions (H x W)

Board:

195 x 310 mm
(7 3/4 x 12 1/4 inches)

Connector panel:

195 x 25 mm
(7 3/4 x 1 inches)

Mass

Board:

Approx. 550 g (1 lb 3 oz)

Connector panel:

Approx. 200 g (7 oz)



Rear Panel

NTSC/PAL
COMPOSITE ANALOG
VIDEO SIGNAL INPUT



BKPF-350 Digital Audio Selector Board

The BKPF-350 digital audio selector board is an eight input to two output switching matrix for AES/EBU audio signals. Crosspoint information is memorized for 24 hours. Up to 14 BKPF-350 boards can be integrated to form a 112 input, 2 output switching matrix. Input and outputs are via BNC connectors.

Features

- * Eight input, two output, switching matrix
- * Simultaneous control of multiple signals with matrix level setting
- * Control from BKS-R Series control units via S-BUS network
- * Supports ISR

The BKPF Series function boards install in both the PFV-D and the PFV-HD Series Interface Units. In a PFV-HD Series Interface Units, they can be installed together with the HKPF Series function boards.

Applicable Models

- PFV-D10 Digital Video Interface Unit
- PFV-D300 Digital Video Interface Unit
- PFV-D50A Digital Video Interface Unit

Specifications

Inputs/outputs

Audio signal inputs:

AES/EBU IN connectors (BNC type) (8)

Audio signal outputs:

AES/EBU OUT connectors (BNC type)
(2)

Rise and fall time:

37 ns

DC offset:

Less than ± 50 mV

ISR output information

Status messages:

3 items

Setup messages:

1 item

General

Power requirements:

+5 V DC, 0.5 A, -5 V DC, 1.0 A
(supplied from the PFV-D/PFV-HD Series Interface Unit)

Power consumption:

Approx. 6 W

Operating temperature:

5 to 40 °C (41 to 104 °F)

Dimensions (H x W)

Board:

195 x 310 mm
(7 3/4 x 12 1/4 inches)

Connector panel:

195 x 25 mm
(7 3/4 x 1 inches)

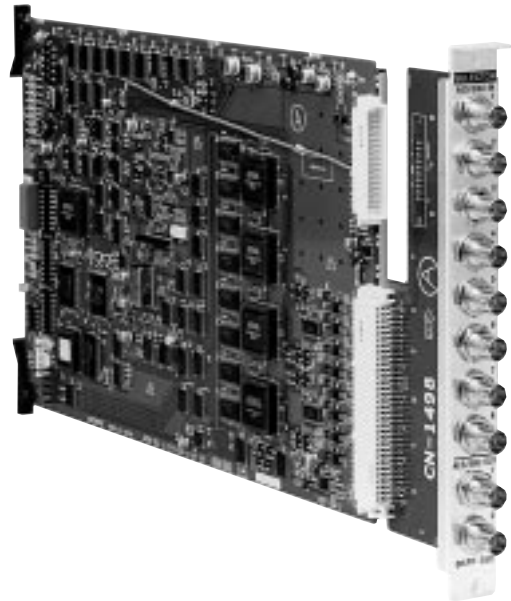
Mass

Board:

Approx. 550 g (1 lb 3 oz)

Connector panel:

Approx. 200 g (7 oz)



Rear Panel

AES/EBU DIGITAL
AUDIO INPUT



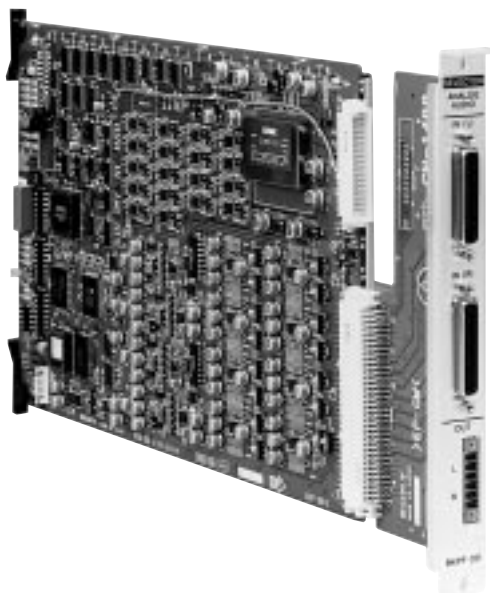
1 AES/EBU DIGITAL
AUDIO OUTPUT
2

BKPF-351 Analog Audio Selector Board

The BKPF-351 analog audio selector board is an eight stereo input to one stereo output switching matrix for analog audio signals. Cross point information is memorized for 24 hours. Up to four BKPF-350 boards can be integrated to form a 32 input, 1 output stereo switching matrix. Inputs are via two D-sub 25-pin connectors and the output via a Phoenix type 6-pin connector. The BKPF Series function boards install in both the PFV-D and the PFV-HD Series Interface Units. In a PFV-HD Series Interface Unit, they can be installed together with the HKPF Series function boards.

Features

- * Eight analog stereo inputs, one stereo output switching matrix
- * Simultaneous control of multiple signals with matrix level setting
- * Control from BKS-R Series control units via S-BUS network
- * Supports ISR



Applicable Models

- PFV-D10 Digital Video Interface Unit
- PFV-D300 Digital Video Interface Unit
- PFV-D50A Digital Video Interface Unit

Specifications

Inputs/outputs

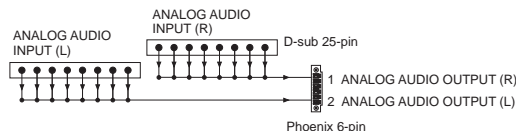
- Audio input:
 - ANALOG AUDIO IN (L) (R) connectors (D-sub 25-pin) (1 each)
- Audio output:
 - ANALOG AUDIO OUT connector (Phoenix type 6-pin) (1)
- Input impedance:
 - 20 kΩ/600 Ω (selectable with on-board switch)
- Output impedance:
 - Approx. 22 Ω
- Nominal input/output level:
 - +4 dBm
- Maximum input level:
 - +24 dBm
- Maximum output level:
 - +24 dBm (600 Ω load, balanced)
- Frequency response:
 - ±0.1 dB (20 Hz to 20 kHz, 1 kHz+4 dBm)
- Distortion:
 - 0.01% (20 Hz to 20 kHz, at +24 dBm output)
- Crosstalk:
 - Less than -80 dB (20 Hz to 20 kHz, at +24 dB output)
- Signal-to-noise ratio:
 - More than 105 dB (30 kHz LPF, at nominal level)
- ISR output information
 - Status messages:
 - 3 items
 - Setup messages:
 - 1 item

General

- Power requirements:
 - +5 V DC, 0.5 A
 - 5 V DC, 1.0 A (supplied from the PFV-D/PFV-HD Series Interface Unit)
- Power consumption:
 - Approx. 8 W
- Operating temperature:
 - 5 °C to 40 °C (41 °F to 104 °F)
- Dimensions (H x W)
 - Board: 195 x 310 mm (7 3/4 x 12 1/4 inches)
 - Connector panel: 195 x 25 mm (7 3/4 x 1 inches)
- Mass
 - Board: Approx. 550 g (1 lb 3 oz)
 - Connector panel: Approx. 200 g (7 oz)



Rear Panel



Interface Processor Others

SIU-80	134
BKSI-2010	135
BKSI-2011	135
BKSI-2020	136
BKSI-2030	136
BKSI-2040	137
BKSI-2041	137
BKSI-2042	138
BKSI-2043	138
BKSI-2044	139
BKSI-2070	139
BKSI-2080	140
BKSI-PS80	140
AMS-100	141

SIU-80 System Interface Unit

Features

*Forms the core of a FlexSys system *Can accommodate up to eight BKSI Series boards *Continuous operation — the redundant power supply unit can be hot-swapped to ensure power supply to the boards *Equipped with ISR (Interactive Status Reporting) *19-inch standard rack mountable and six rack units height

Optional Boards

- BKSI-2010 Disk Controller Board
- BKSI-2011 Disk Controller Memory Board
- BKSI-2020 Bit Rate Reduction Encoder Board
- BKSI-2030 Bit Rate Reduction Decoder Board
- BKSI-2040 Intelligent Device Controller (IDC) CPU Board
- BKSI-2041 IDC Serial Link Connector Board
- BKSI-2042 IDC Serial I/F Connector Board
- BKSI-2043 IDC Parallel I/F Connector Board
- BKSI-2044 IDC S-BUS/VS-BUS I/F Connector Board
- BKSI-2050 Video A to D Converter Board
- BKSI-2050P Video A to D Converter Board
- BKSI-2060 Video D to A Converter Board
- BKSI-2060P Video D to A Converter Board
- BKSI-2070 Audio A to D Converter Board
- BKSI-2080 Audio D to A Converter Board

Optional Software

- BZA-900 Multi-Channel Manager Software
- BZA-90 Time shift transmission manager software
- BZA-81 Copy manager software

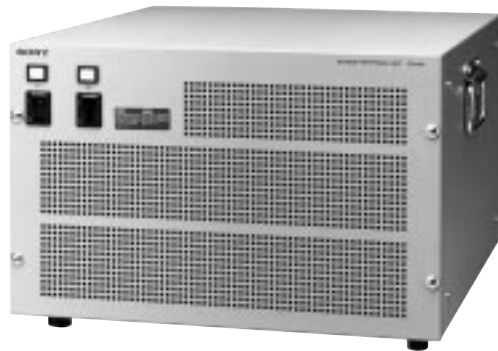
Specifications

Inputs/outputs

- Input:
 - REF VIDEO INPUT connector (BNC type) (1)
 - Active loop-through output connector (1)
- REMOTE:
 - D-sub 25-pin, female (1)
 - S-BUS (BNC type) (1)
 - Active loop-through output connector (1)

General

- Power requirements:
 - AC 100 to 240 V \pm 10%, 50/60 Hz
- Power consumption:
 - Max. 400 W
- Operation temperature:
 - 5 to 40 °C (41 to 104 °F)
- Operating humidity:
 - 10 to 90% (no condensation)
- Dimensions (W x H x D):
 - 424 x 265 x 470 mm
 - (16 3/4 x 10 1/2 x 18 5/8 inches)
- Mass:
 - Approx. 15 kg (33 lb 1 oz)



Rear Panel

BKSI-2010 Disk Controller Board

The BKSI-2010 disk controller board converts SDDI (Serial Digital Data Interface) signals to SCSI format signals and outputs them to be recorded on HDD arrays. SCSI format playback signals from HDD arrays are converted back to SDDI format signals. As standard, the BKSI-2010 supports two BKSI-2030 bit rate reduction boards, which convert the SDDI output signal to SDI. Two RS-422A ports are provided to support control via the Sony 9-pin disk protocol. Up to eight MAV-S100/S110 HDD arrays can be controlled via a daisy-chain connection, providing up to 24 hours of recording.

Applicable Models
SIU-80 System Interface Unit

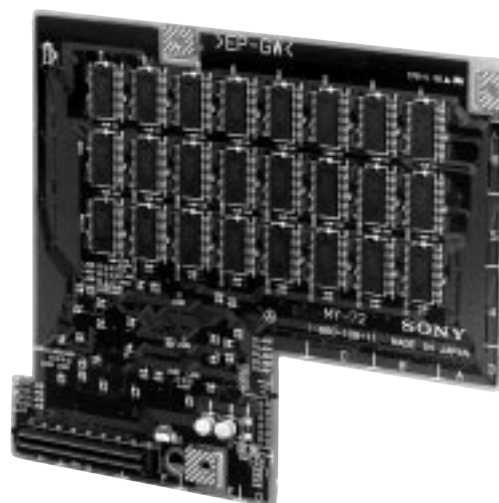


Rear Panel

BKSI-2011 Disk Controller Memory Board

The BKSI-2011 disk controller memory board is a daughter board of the BKSI-2010 disk controller board. With the BKSI-2011 installed on the BKSI-2010, up to four outputs, or one input and three outputs can be controlled. The output signals are multiplexed into an SDDI signal.

Applicable Models
SIU-80 System Interface Unit



BKSI-2020 Bit Rate Reduction Encoder Board

The BKSI-2020 bit rate reduction encoder board accepts an SDI signal, two AES/EBU digital audio signals and a time code signal. The SDI signal is compressed and, together with the digital audio and time code signals, converted to an SDDI format signal and output. * Video compression format: MPEG-2 4:2:2P@ML * Compression rate and GOP length: 18 Mbps, 2 Frame GOP * Audio encoding: two, uncompressed AES/EBU signals (48 kHz, 16 bit)

Applicable Models
SIU-80 System Interface Unit



Rear Panel

BKSI-2030 Bit Rate Reduction Decoder Board

The BKSI-2030 bit rate reduction decoder board accepts an SDDI signal that combines compressed video with uncompressed AES/EBU audio and time code signals. It decodes and outputs these signals as an SDI signal which combines uncompressed video and audio signals. Three outputs of this SDI signal are provided. The two AES/EBU audio signals are also available on separate outputs, while a third AES/EBU output carries L/R channels selected from the four individual channels carried by the two AES/EBU signals. The time code signal is also output separately. The BKSI-2031 BRR Decoder Jog Kit is attached to the BKSI-2030.

Applicable Models
SIU-80 System Interface Unit

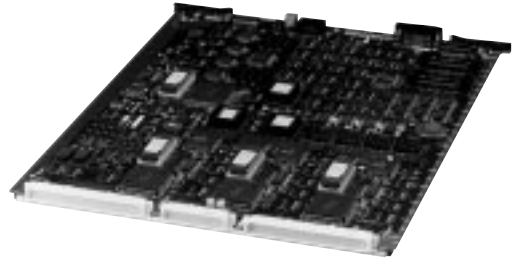


Rear Panel

BKSI-2040 Intelligent Device Controller (IDC) CPU Board

The BKSI-2040 IDC CPU board is used in two ways. As a root controller the board receives commands from a Server Management System Gateway (SMS/GW) computer and provides control to other BKSI-2040 boards used as sub-IDC boards within an SIU-80 interface unit. As a device controller (sub-IDC board) it provides control for servers, routers, VTRs and other remote devices. Each sub-IDC board must be used in conjunction with the appropriate connection board; BKSI-2041, BKSI-2042, BKSI-2043 or BKSI-2044.

Applicable Models
SIU-80 System Interface Unit



BKSI-2041 IDC Serial Link Connector Board

The BKSI-2041 IDC serial link connector board is used in conjunction with a BKSI-2040 IDC CPU board configured as a root IDC. The BKSI-2041 provides the interface connections between the Server Management System Gateway (SMS G/W) computer and the SIU-80 interface unit using D-sub 9-pin connectors. It also provides the interface connections for multiple SIU-80 interface units operating from a single SMS G/W.

Applicable Models
SIU-80 System Interface Unit



Rear Panel

BKSI-2042 IDC Serial I/F Connector Board

The BKSI-2042 IDC serial interface connector board is used in conjunction with a BKSI-2040 IDC CPU board configured as a serial device controller (sub-IDC board). The BKSI-2042 provides up to six simultaneous RS-232C or RS-422A control connections, on D-sub 9-pin connectors, between the SIU-80 interface unit and remote devices.

Applicable Models
SIU-80 System Interface Unit

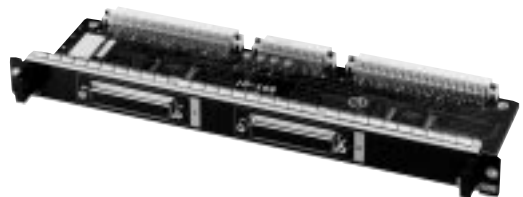


Rear Panel

BKSI-2043 IDC Parallel I/F Connector Board

The BKSI-2043 IDC parallel interface connector board is used in conjunction with a BKSI-2040 IDC CPU board configured as a parallel device controller (sub-IDC board). The BKSI-2043 provides up to 48 input/output connections (e.g. triggers and tallies), on a D-sub 50-pin connector, between the SIU-80 interface unit and up to two remote devices.

Applicable Models
SIU-80 System Interface Unit

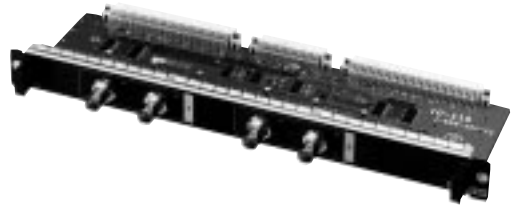


Rear Panel

BKSI-2044 IDC S-BUS/VS-BUS I/F Connector Board

The BKSI-2044 IDC S-BUS/VS-BUS interface connector board is used in conjunction with a BKSI-2040 IDC CPU board configured as an S-BUS or VS-BUS device controller (sub-IDC board). The BKSI-2044 has two sets of BNC connections, which provide the interface between the SIU-80 interface unit and the remote devices, such as routers or video servers.

Applicable Models
SIU-80 System Interface Unit

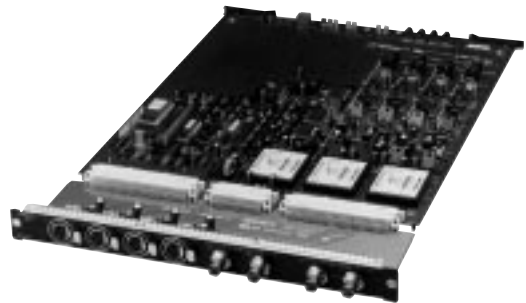


Rear Panel

BKSI-2070 Audio A to D Converter Board

The BKSI-2070 Audio A to D converter board accepts four analog audio signals and converts them into two AES/EBU digital audio signals. Individual input level controls are provided internally, and externally via PCNS. Input connectors are XLR type, the AES/EBU output signals are via BNC type connectors. A Frame Pulse input allows the BKSI-2070 to operate in synchronism with a video A to D converter, such as a BKSI-2050/2050P.

Applicable Models
SIU-80 System Interface Unit

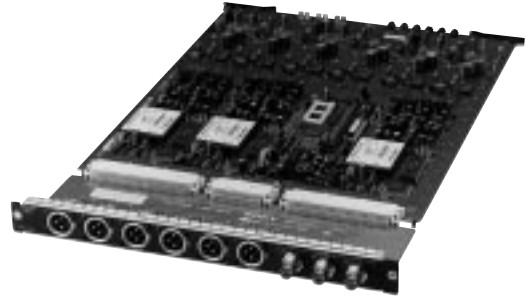


Rear Panel

BKSI-2080 Audio D to A Converter Board

The BKSI-2080 audio D to A converter board accepts three AES/EBU digital audio signals and converts them into six analog audio signals. Individual output level controls are provided internally. The AES/EBU input connectors are BNC type, the analog output signals are via XLR type connectors.

Applicable Models
SIU-80 System Interface Unit



Rear Panel

BKSI-PS80 Backup Power Supply Unit

The BKSI-PS80 is an optional backup power supply for installation in an SIU-80 interface unit. It operates in parallel with the main PSU so that, if this fails, the BKSI-PS80 will continue to supply DC power to the SIU-80 and to installed BKSI Series boards.



AMS-100 Audio Monitor Speaker

Features

*Analog/digital input capability; inputs are configured with optional modules, the BKAM-101 (Analog), the BKAM-102 (AES/EBU), and BKAM-103 (SDI with embedded audio). Up to two modules are installed in the AMS-100. *Input selection up to 32 channels (when two modules are installed) *Input selection using external equipment via a remote connector *Monitoring through headphones and external equipment *Level indication on the front panel LED VU meters *Magnetic shielding *Compact 1RU size, 19-inch rack-mountable unit *100 to 240 V AC operation with automatic switching



Rear Panel

Supplied Accessories

Rack mounting plate (factory-installed) (2)

Optional Boards

BKAM-101 Analog Module
BKAM-102 AES/EBU Module
BKAM-103 SDI Module

Specifications

Inputs/Outputs

Parallel remote control interface:

TTL level, D-sub 25P (x1)

Monitor output (via remote connector):

2ch, +4 dBm, +24 dBm max., 600 Ω

Built-in speaker output:

2 W + 2 W

Headphone output:

-12 dBu at 8 Ω

Audio characteristics (via remote connector)

Frequency response:

20 Hz to 20 kHz ± 1 dB

Crosstalk between channels:

Less than -75 dB at 8 kHz

Signal-to-noise ratio:

More than 90 dB

T.H.D.:

Less than 0.05% at reference level

General

Power requirements:

AC 100 to 240 V, 50/60 Hz

Power consumption:

25 W

Dimensions (W x H x D):

424 x 44 x 350 mm
(16 3/4 x 1 3/4 x 13 7/8 inches)

Mass:

5 kg (11 lb)

GENERAL INDEX

A

AMS-100141

B

BKPF-012A122
 BKPF-021124
 BKPF-205125
 BKPF-206127
 BKPF-300129
 BKPF-301130
 BKPF-350131
 BKPF-351132
 BKPF-L601C71
 BKPF-L602C72
 BKPF-L60373
 BKPF-L60575
 BKPF-L60676
 BKPF-L608C77
 BKPF-L61179
 BKPF-L61280
 BKPF-L613C81
 BKPF-L63283
 BKPF-L64184
 BKPF-L64286
 BKPF-L65388
 BKPF-L703A89
 BKPF-L70491
 BKPF-L72392
 BKPF-L75193
 BKPF-L75295
 BKPF-L753A96
 BKPF-L75497
 BKPF-L80398
 BKPF-R70A34
 BKS-R161723
 BKS-R161824
 BKS-R321625
 BKS-R321926
 BKS-R322027
 BKS-R3240A28
 BKS-R3242A29
 BKS-R3248A30
 BKS-R328031
 BKS-R328132
 BKS-R500135
 BKSI-2010135
 BKSI-2011135
 BKSI-2020136
 BKSI-2030136
 BKSI-2040137
 BKSI-2041137
 BKSI-2042138
 BKSI-2043138
 BKSI-2044139
 BKSI-2070139
 BKSI-2080140
 BKSI-PS80140

BVS-A323221
 BVS-V323222
 BZR-200036
 BZR-IF31037

D

DVS-12817
 DVS-RS161619
 DVS-TC323220

E

ECD-10C40
 ECD-30C40
 ECD-3C40
 ECD-C cables40

H

HDS-X340016
 HDS-X360015
 HDS-X370014
 HDS-X580012
 HKDV-900116
 HKPF-101102
 HKPF-102103
 HKPF-103M104
 HKPF-105M105
 HKPF-106M106
 HKPF-1125A107
 HKPF-525AV110
 HKPF-525V109
 HKPF-9000114
 HKPF-D270111
 HKPF-E270117
 HKPF-SP00361
 HKPF-SP02163
 HKPF-SP02265
 HKSP-008HD46
 HKSP-061M48
 HKSP-10550
 HKSP-10652
 HKSP-112559
 HKSP-30054
 HKSP-31357
 HKSP-52555
 HKSP-R8033

P

PFV-D10119
 PFV-D300121
 PFV-D50A120
 PFV-HD300A101
 PFV-HD50A100
 PFV-L1070
 PFV-SP310044
 PFV-SP330045

R

RCC-5R40
 RCC-R cables40
 RMM-3042

S

SIU-80134

U

UCP-806067

CATEGORY INDEX

Cables

ECD-10C40
 ECD-30C40
 ECD-3C40
 ECD-C cables40
 RCC-5R40
 RCC-R cables40

Common Accessories

RMM-3042

Interface Processor D Series

BKPF-012A122
 BKPF-021124
 BKPF-205125
 BKPF-206127
 BKPF-300129
 BKPF-301130
 BKPF-350131
 BKPF-351132
 HKDV-900116
 HKPF-101102
 HKPF-102103
 HKPF-103M104
 HKPF-105M105
 HKPF-106M106
 HKPF-1125A107
 HKPF-525AV110
 HKPF-525V109
 HKPF-D270111
 HKPF-E270117
 PFV-D10119
 PFV-D300121
 PFV-D50A120
 PFV-HD300A101
 PFV-HD50A100

Interface Processor L Series

BKPF-L601C71
 BKPF-L602C72
 BKPF-L60373
 BKPF-L60575
 BKPF-L60676
 BKPF-L608C77
 BKPF-L61179
 BKPF-L61280
 BKPF-L613C81
 BKPF-L63283
 BKPF-L64184
 BKPF-L64286
 BKPF-L65388
 BKPF-L703A89
 BKPF-L70491
 BKPF-L72392
 BKPF-L75193
 BKPF-L75295
 BKPF-L753A96
 BKPF-L75497

BKPF-L80398
 PFV-L1070

Interface Processor Others

AMS-100141
 BKSI-2010135
 BKSI-2011135
 BKSI-2020136
 BKSI-2030136
 BKSI-2040137
 BKSI-2041137
 BKSI-2042138
 BKSI-2043138
 BKSI-2044139
 BKSI-2070139
 BKSI-2080140
 BKSI-PS80140
 SIU-80134

Interface Processor SP Series

HKPF-SP00361
 HKPF-SP02163
 HKPF-SP02265
 HKSP-008HD46
 HKSP-061M48
 HKSP-10550
 HKSP-10652
 HKSP-112559
 HKSP-30054
 HKSP-31357
 HKSP-52555
 PFV-SP310044
 PFV-SP330045
 UCP-806067

Routing Switchers

BKPF-R70A35
 BKS-R161723
 BKS-R161824
 BKS-R321625
 BKS-R321926
 BKS-R322027
 BKS-R3240A28
 BKS-R3242A29
 BKS-R3248A30
 BKS-R328031
 BKS-R328132
 BKS-R500135
 BVS-A323221
 BVS-V323222
 BZR-200036
 BZR-IF31037
 DVS-12817
 DVS-RS161619
 DVS-TC323220
 HDS-X340016
 HDS-X360015
 HDS-X370014

HDS-X580012
 HKSP-R8033

VTR Accessories/Peripherals

HKPF-9000114

Technical References

Routing Switchers	146
ISR	158
EDH	160

Routing Switchers

Introduction to the Sony Signal Routing System

The Sony routing system on a complete range of flexible, modular, signal routing matrixes. It interfaces to other routing equipment, production and presentation switchers, tally and UMD systems to form multi-signal switching systems. The range includes:

- HDS-X5800/X3000 Series, a range of multi bit-rate routing switchers
- DVS-128, a routing switcher for both analog video and analog/digital audio
- DVS-RS1616 for separate RS-422A and RS-232C control routing
- DVS-TC3232 for separate line code routing
- BVS-V3232 for routing PAL and NTSC composite analog video
- BVS-A3232 for routing analog audio
- BKPF-300 Series, a routing of four boards for digital/analog, video/audio routing.
The BKPF-300 Series mount into PFV-D/PFV-HD Series Interface Units.
- HKSP-061M for routing serial digital signals
HKSP-061M mounts into PFV-SP Series Interface Units.

Some router types have the capability of being expanded to form a larger matrix. For example, an HDS-X5800 router has a 264 x 272 matrix. However, using optional kits several units can be connected to form a larger square or rectangular routing matrix.

When forming a multi-switching system, several different signal types may be included in the system-digital video and audio, analog video and audio, time code and RS-422A. To allow independent switching of different signal types, routing matrix can be placed on different signal types switching can be independent or married- i.e. two different signal types switched simultaneously. In the Sony routing system, up to sixteen levels are available to accommodate different signal types.

S-BUS Router Control

Supporting the overall range is the Routing Control System, a highly sophisticated local area network called Sony S-BUS. However, S-BUS goes beyond just being a control system-it is an operational philosophy blending a sophisticated control system with elements such as control panels, production switchers and third-party router integration and lobbies.

S-BUS connects all these elements together using standard video coaxial cables. This is an advantage, as both interconnection and maintenance are low in cost.

S-BUS also features some advanced features:

Free I/O assignment across all levels

- any source or destination can be freely assigned to any crosspoint regardless of physical connection

Full signal breakaway

- sources in a multilevel system can be switched married or unmarried

Descriptive naming

- sources and destinations can be named to match the user's needs

Virtual matrix management

- matrix can be placed virtually within S-BUS space for more efficient operation

Tie-line management

- tie-line management provides for connection of different routing switchers for signal interconnections

Source, destination and crosspoint protection mechanisms

- sources and destination can be inhibited, protected or made secret

Password protection

- passwords can be used to restrict the personnel able to make changes

Powerful phantom facilities

- multiple crosspoint changes can be made from a single push-button depression

In addition to S-BUS, Sony routing systems can be controlled from RS-422A. This method of control permits additional flexibility, interfacing to automation system is just one example. In smaller routing matrix, parallel control is adopted to provide a low-cost control system

System Control

A wide range of control units is available a Sony routing system.

- Sixteen and thirty-two button-per-source control units
- Multi-source control units
- Multi-destination control units
- X/Y control units

Some of these units support VTR transport control, level switching and destination control. A unique feature is that unit software and set-up data can easily be copied from one unit to another using S-BUS.

Extended control features, provided by BZR-2000 software running on an IBM compatible machine include:

- graphic displays of crosspoint maps
- interactive graphics for system configuration
- display of video signal sources and destinations on a PC VDU
- multiple-user environment

Integrated Systems

A key element of Sony routing systems is their ability to provide an integrated solution for the user. Sony routing systems can be interfaced to Sony MVS-8000 Series/DVS-7000 Series production switchers. With the high level of integration available, destinations fed from the router to the switcher can be controlled, so that the production switcher is effectively expanded to be able to accommodate all the available sources. In addition the router source named can be displayed on the control panel of the production switcher. It is also possible to control the router from the switcher and vice-versa.

Legacy third-party routing systems may also require to be controlled. Sony routing systems can either control the router or, in some cases, be controlled from the legacy system.

Within S-BUS, significant support is provided for tally and management. The power of this process is clearly visible in an integrated solution, where tallies can pass through several routers without losing IDs. Sony camera systems can also be interfaced, eliminating separate connections to each CCU for Red and Green tallies.

Critical Applications

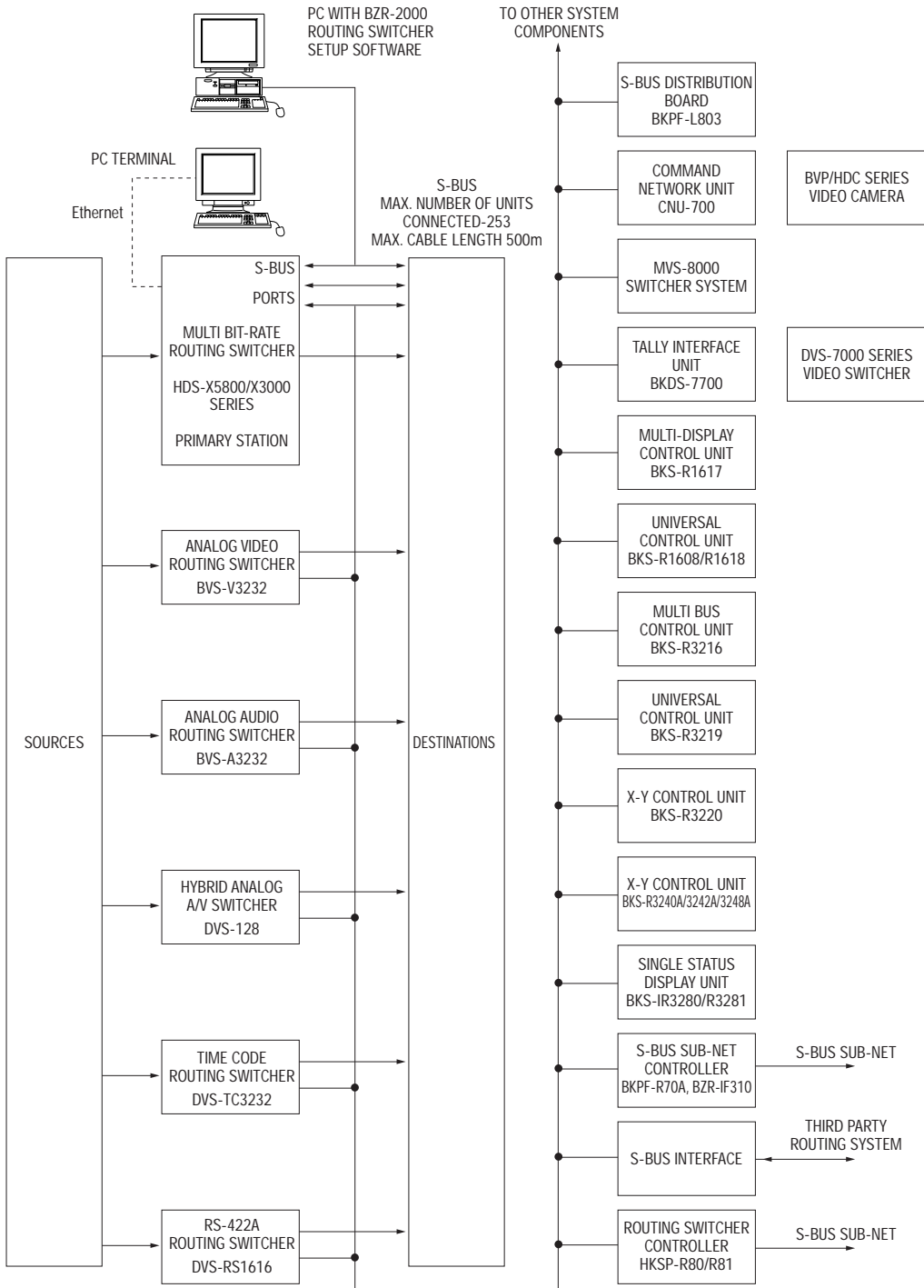
In any mission-critical system redundancy is a pre-requisite to ensure that the system is available at all times, even in the unlikely event of a power supply or system fault.

Sony routing systems are no exception to this philosophy. Backup power supplies are available for most routing and interfacing equipment.

Redundancy also extends to being able to provide backup control boards for the CPUs in a routing system.

In addition to providing redundant power supplies and control boards, data is held in on-board memories with a 24-hour battery backup, and can also be saved to floppy disk. In Sony routing systems, BZR-20 software is supplied as an accessory so that the systems data contents easily saved.

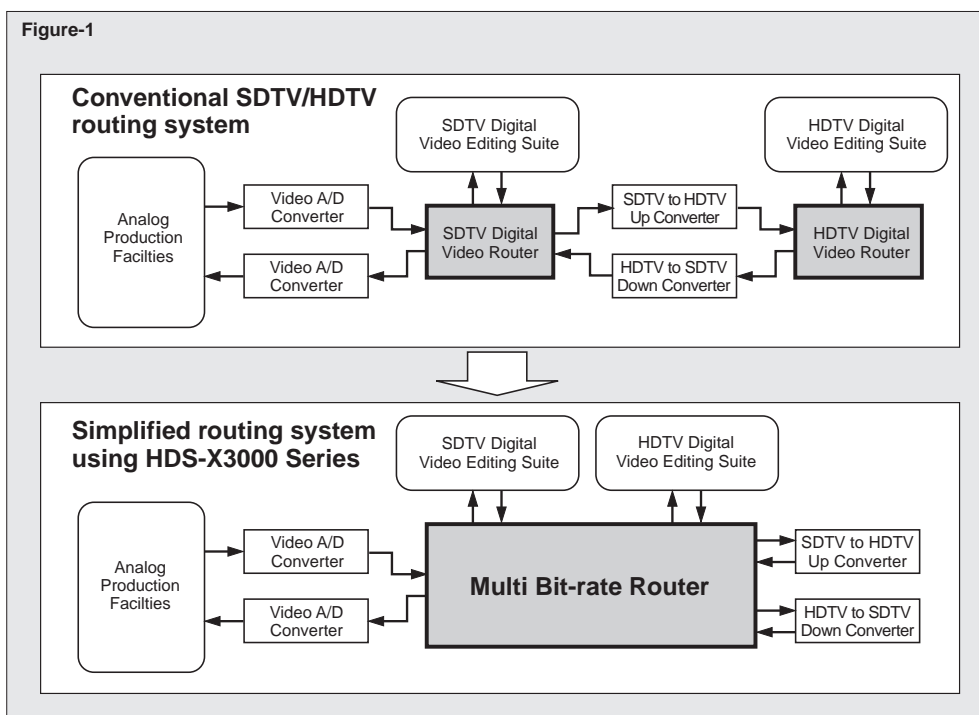
S-BUS System Components and Control



Powerful Matrix Control Functions of Sony HDS-X5800/X3000 Series

The introduction of the Sony multi bit-rate routing switchers has become an effective way of solving the problems caused by the rapid increase in the number of signal formats. Their benefits include:

- Space and cost saving
 - SD SDI & HD SDI in a single frame under the same control
- Flexible and simple SD/HD migration
- Efficient use of conversion equipment
 - Sharing up/down converters between multiple signal paths



Using the HDS-X5800/X3000 Series to Simply Operation with Signal Coexistence

The multi bit-rate matrix system only becomes an effective signal management system when it is combined with various control functions. In particular, the equipment expansion method shown in Figure-1 requires down conversion and D/A conversion each time HDTV signal elements are taken into analog equipment and cannot be implemented without the tie-line function described below.

The HDS-X5800/X3000 Series not only provides complete compatibility with control systems used with legacy Sony routing switchers but also fully utilizes the many matrix control functions developed by Sony.

Input/output system protection functions (protect and secret functions)

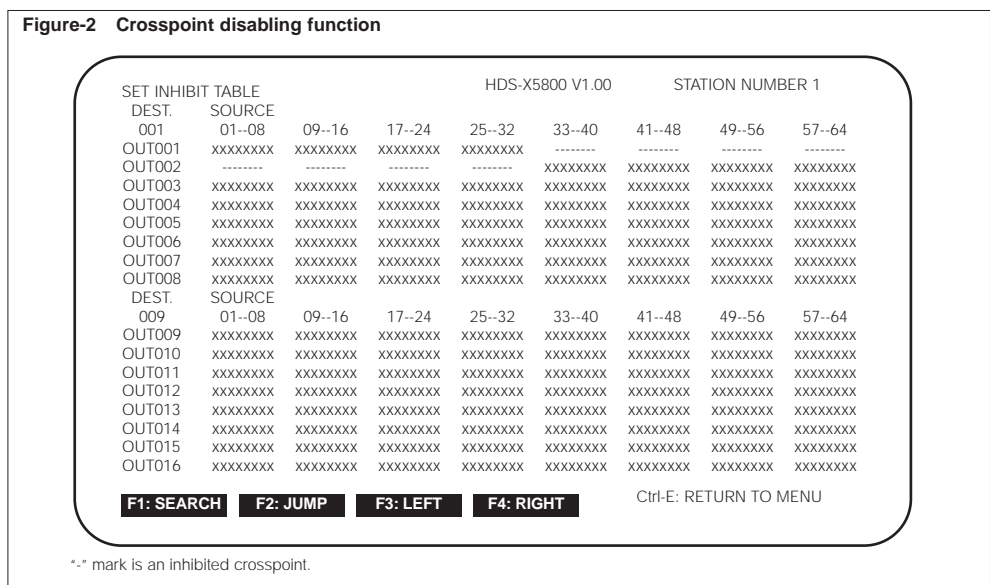
There are two protection functions:

“Protect” function prevents the output destination from being re-assigned from another remote control panel.

“Secret” function ‘hides’ the input sources that cannot be selected to any destination from any remote control panel.

Crosspoint disabling function

This function inhibits individual crosspoints to limit the availability of each source to individual destinations.



Phantom function (salvo function)

This function allows the switching of multiple crosspoints at the same time with a single button operation. The following two types of settings can be made:

- (1) “Local phantom”: Registers up to 64 crosspoints for each remote control panel.
- (2) “Global phantom”: Registers up to 2,800 crosspoints for the routing switchers set by the primary stations.

Names can be set for phantoms (groups of crosspoints switched simultaneously). Since local phantoms are registered for each remote control panel, the same name can be used for a different group of crosspoints on each remote control panel.

On the other hand, global phantoms are useful when there are many crosspoints to switch simultaneously, or when sharing the same phantom across multiple remote control panels. Also, the number of phantoms set for each unit can be increased by combining global phantoms and local phantoms.

Name setting function

Names can be set for Sources and Destinations in order to identify the signals connected.

The following two methods are available for setting names.

- (1) "Type name (VTR, CAM, etc.) + Number": 32 names each comprising up to four letters and three numbers.
- (2) "Descriptive name (REPORT_FROM_LA, etc)": Name made of up to 16 Latin alphanumeric characters.

Eight group of data can be registered within the primary station with each group containing 160 descriptive names. This data can be sent and displayed on UMDs (Under Monitor Displays) and remote control panels.

Tie-line function

This function automatically selects signal paths across multiple routing switchers. This function is used to effectively utilize external devices between routers, or to increase the number of inputs/outputs. Up to 255 signal paths connecting specific inputs and outputs can be registered for each group (source, net, and destination). When the input and output are selected, the primary station CPU automatically selects an unused signal path. Signal paths can be set over multiple levels (Figure 3). This function makes possible the efficient system operation of complicated signal paths through routing switchers without having to separately activate the appropriate crosspoints in each of these routers.

Free input and output assignment function

Free assignment of inputs and outputs allows sources and destinations on different levels to be grouped under a single source or destination name. For example the video, audio and time code signals of VTR-001 do not have to be assigned to the same channel on each level,

but could be assigned as, say, channel 1 of the video router, channel 10 of the audio router and channel 12 of the time code router. This function provides a much more flexible signal-handling environment.

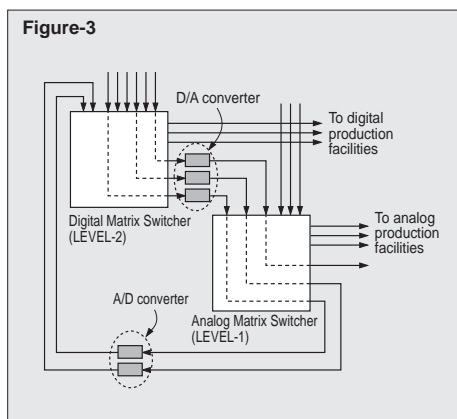


Figure-3 Tie-Line Function Concept Diagram

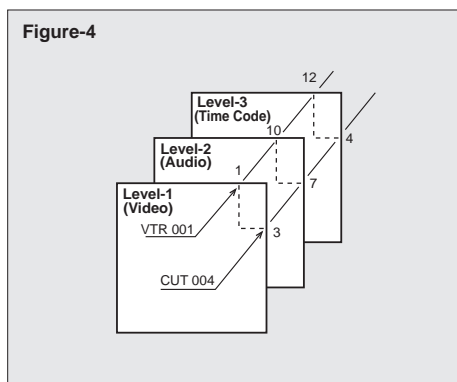


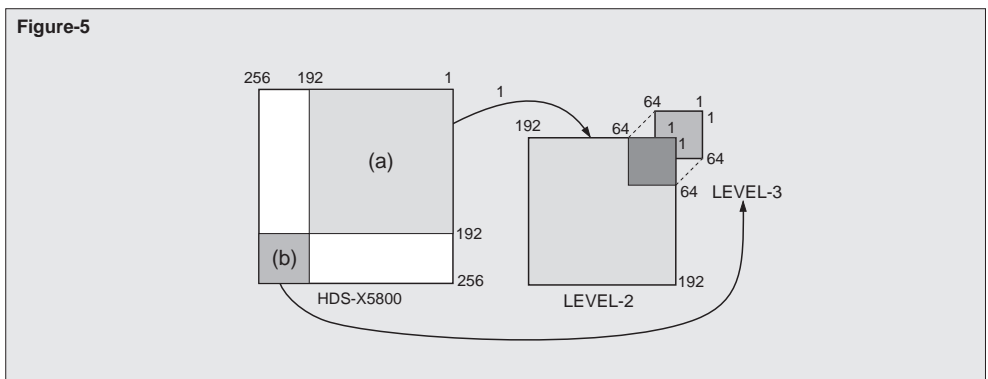
Figure-4 Free Input and Output Assignment

Virtual mapping function

This function lays out routing switcher crosspoints on a virtual matrix of 1024 inputs x 1024 outputs when eight levels are used or 1024 inputs x 512 outputs when 16 levels are used.

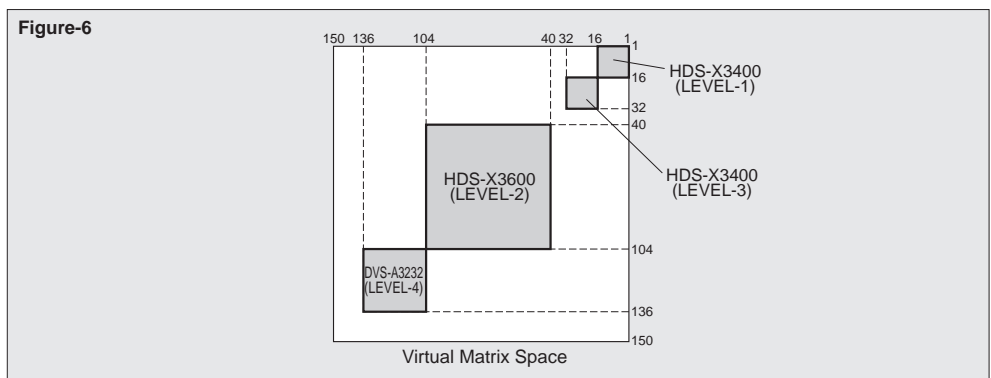
The virtual mapping capability of Sony routing switchers features two types of mapping:

- (1) A single routing switcher can be mapped to operate as a number of individual routing switchers. For example, a single 256 x 256 multi bit rate routing switcher can be divided into, say, a 192 x 192 switcher and a 64 x 64 switcher so that the corresponding crosspoints on these two levels are switched simultaneously. This allows a 192 x 192 HD switcher and a 64 x 64 SD switcher to be created (Figure-5).



Virtual Mapping Function Concept Diagram 1

- (2) Multiple routing switchers can be mapped on a larger, virtual routing level (Figure-6). This application could be used in the tie-line management system described above in section 5.



Virtual Mapping Function Concept Diagram 2

Self-diagnostic function

This function can send information on errors and the presence/absence of inputs to a control terminal connected to the primary station for display.

Main Features of the HDS-X5800/X3000 Series

Support for multiple bit rates independent of signal format

These switches support not only HD SDI, but also various other transmission rates of SDI (540 Mb/s, 360 Mb/s, 270 Mb/s and 143 Mb/s) and SDTI (Table 1), and support embedded AES/EBU Audio.

Both HD-SDI and SD-SDI I/O boards can be simultaneously installed, providing a real opportunity to meet tomorrow's routing requirements. Installed HDS-X3000/5800 routers containing SD-SDI I/O boards can easily include HD-SDI I/O boards when necessary.

Equalization of both the HDS-X5800 and -X3000 Series is optimized to 1.5 Gb/s when fitted with HD SDI/SDI compliant boards.

Table 1 Signal Formats Supported by the HDS-X5800/X3000 Series

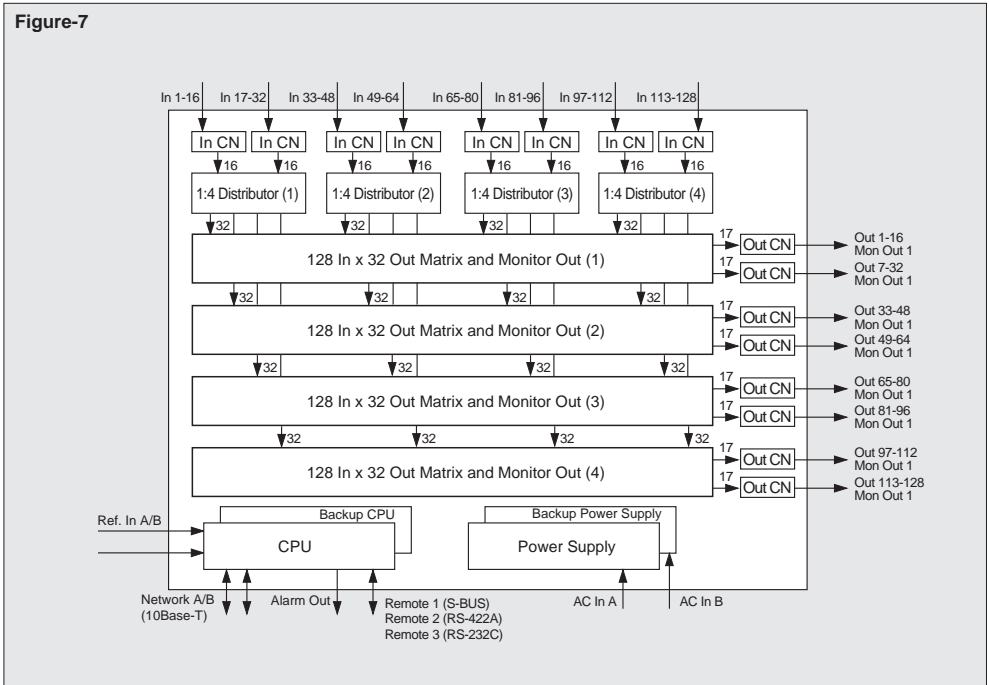
Signal Format	Bit Rate	Standard
Composite Digital Video (NTSC)	143 Mb/s	SMPTE259M-A
Composite Digital Video (PAL)	177 Mb/s	SMPTE259M-B
Component Digital Video (13.5/18 MHz Sampling)	270 Mb/s, 360 Mb/s (NRZI coded)	SMPTE259M-C/D
Component HDTV (1035i/1080i/720p)	1.485 Gb/s	SMPTE292M A-M
SDTI (Compressed Video Transport)	270 Mb/s (NRZI coded)	SMPTE305M, SMPTE259M
Mezzanine HDTV (Proposed)540 Mb/s	SMPTE (Draft)	

* Rise and fall times of SD-SDI output signals may be faster than defined by SMPTE259M.

Modular structures for flexible construction and expansion of different sizes of matrix

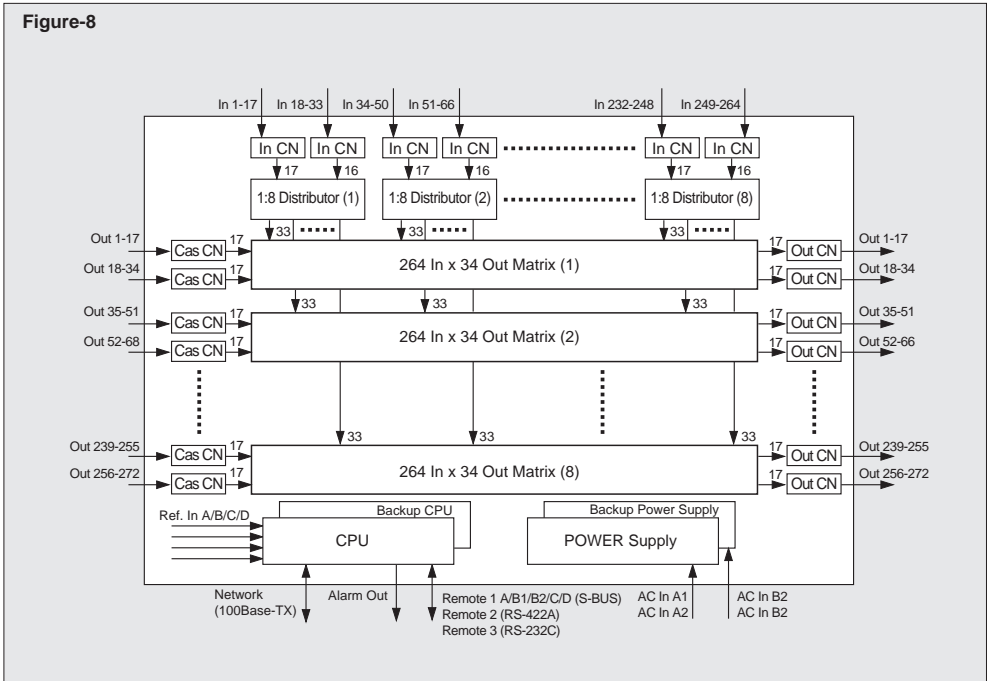
HDS-X5800/X3000 Series routers may be configured to meet initial size requirements, and then easily increased in size and format as required.

Figure-7



HDS-X3700 Internal Configuration Diagram

Figure-8



HDS-X5800 Internal Configuration Diagram

Affinity with and expandability in current broadcast and production environments.

HDS-X5800/X3000 Series routing switchers are easily installed into today's system environments, providing:

- (1) Tri-level sync and black burst sync input
- (2) 59.94 and 50 Hz vertical sync both possible
- (3) Simultaneous control of multiple signals through level settings
- (4) Four systems of signal switching control – S-BUS terminal, RS-422A control, RS-232C control, and Ethernet control

Compact and space saving

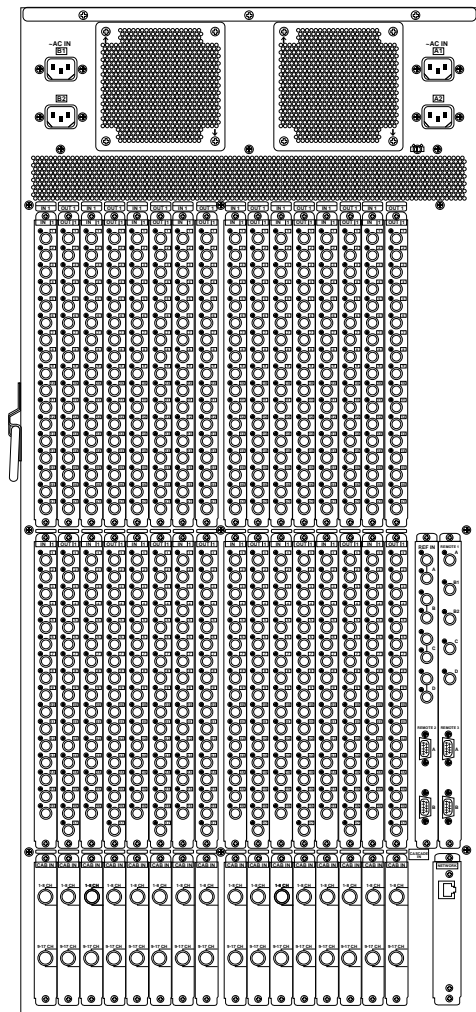
Every possible measure has been taken to reduce the space requirements of HDS-X5800/X3000 Series routing switchers so that they can be used in environments where there is very little margin of space such as existing remote vehicles and crowded machine rooms. To overcome these issues, all Sony routers have been designed with a small chassis and high-density matrix, and in the case of the HDS-X3400, local control panels are available.

Securing maintainability and reliability

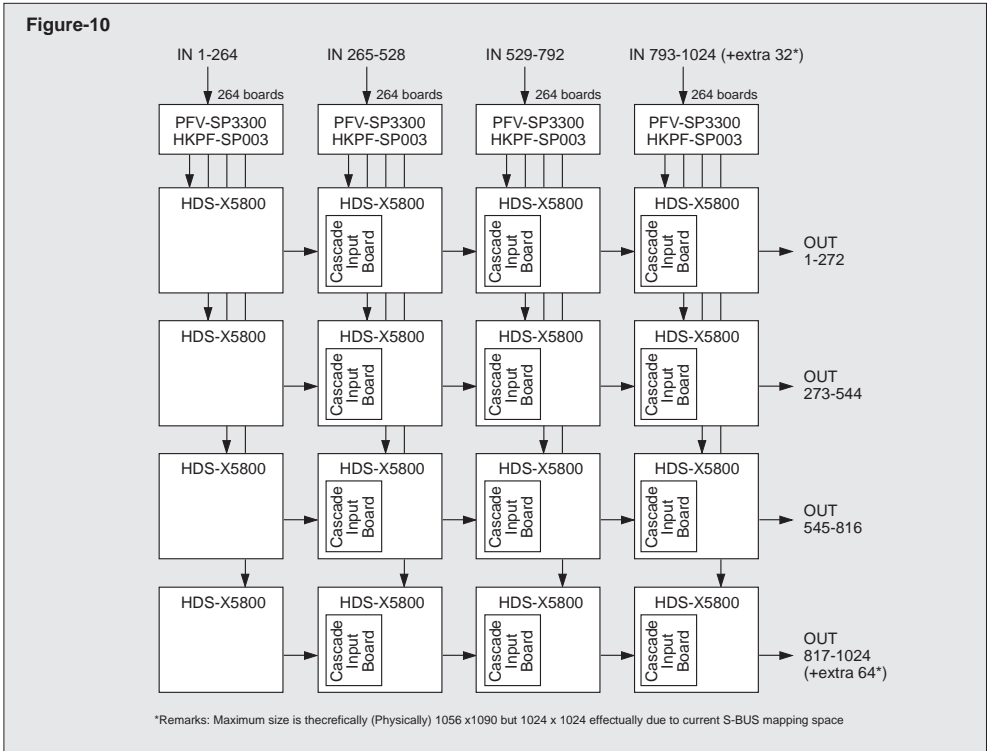
Although designed to be compact, maintenance and reliability have not been compromised:

- (1) Backup power supplies and CPU boards are available on most models
- (2) Crosspoint data storage
- (3) Board maintenance from front
- (4) Fault notice functions (self-diagnostic functions)

Figure-9



HDS-X5800 Rear Panel



Cascade Connection Example of HDS-X5800

Technical References: ISR

ISR—Interactive Status Reporting

Television broadcast and production systems become ever more complex and the ability to monitor equipment ever more important – but at the same time increasingly difficult. Equipment downtime can have a dramatic effect on revenue, so knowledge of potential equipment failure is of great value. The solution is the Sony ISR (Interactive Status Reporting) system, which allows a wide range of digital broadcast equipment to be remotely monitored.

Digital equipment has brought new levels of performance and operational benefits at every stage of the program making process - acquisition, production, post and play out. These benefits now include detailed equipment database management, allowing significant improvements to be made in operating efficiency.

ISR provides status reporting, error logging and remote control and remote diagnostics on VTRs, camera systems, routers, servers, switchers and edit controllers. This wealth of information brings levels of centralized system management never before possible.

ISR runs on industry-standard PC platforms and can monitor a single unit or up to 1,000 individual items of equipment, depending on the type of ISR software in use.

The ISR system

- **Status monitoring provides continuous displays of**
 - error and warning status of equipment
 - VTR channel condition
 - EDH and EDA status of equipment
 - system log files status
- **Remote diagnostics**
 - diagnostic checks of remote equipment
 - intelligent remote control functions for VTRs
- **Database management**
 - reception and storage of error and warning messages, logged by device serial number
 - selective or complete uploading, storage, editing, and downloading of VTR set-up parameters
 - management and retrieval of historical data
 - logging of VTR channel condition, with time stamp and time code
 - management of equipment in discrete groups
 - export of data to Microsoft Excel™
- **Software options**
 - BZI-500/03, supports connection of up to eight devices*
 - BZI-500/03 plus BZI-501/03 supports connection of up to 64 devices**
 - BZI-502 supports connection of up to 1,000 devices and acts as a system supervisor***
 - more than one supervisory node can exist on the same system

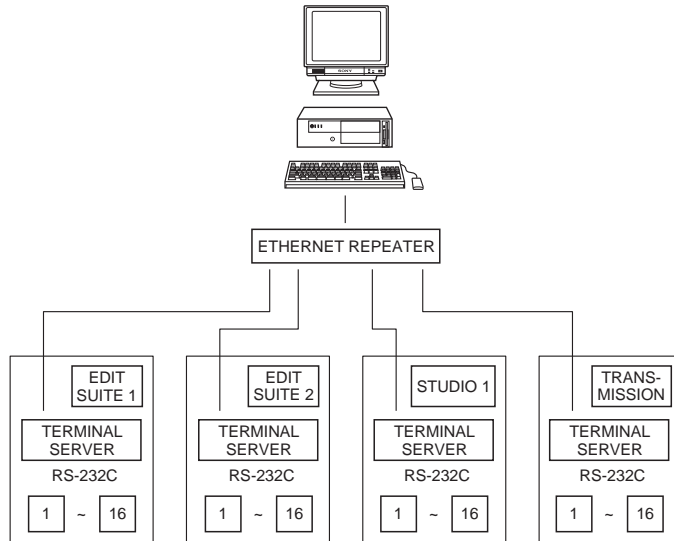
* May require an additional RS-232C expansion card

** Will require network components and software

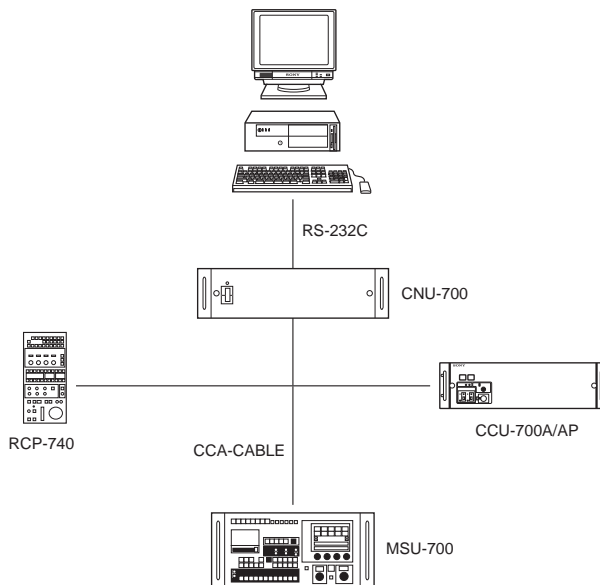
*** Requires NT 3.51 server if more than three 500/501 nodes exist on the same system

Conceptual ISR Configurations

ENGINEERING MAINTENANCE
APPLICATION FOR BZI-501/03
CONTROLLING UP TO 64
UNITS IN DIFFERENT
TECHNICAL AREAS



BZI-501/03
A CAMERA CONTROL
ENVIRONMENT



Technical References: EDH

EDH – Error Detection and Handling

The need for EDH

Video installations never get any simpler. In fact, the growth in viewer expectations of seeing what they want when they want, has resulted in a huge, world wide expansion in systems devoted to the switching and routing of video signals. Continuous quality monitoring of every signal path is, in many cases, impractical. Signals may arrive at a switching center, be routed to a destination, and leave the center without any check being made to ensure that the signal going out is as good as the signal coming in. When these signals are serial digital video, their inherent resistance to distortion will generally mean that they do pass through a system unchanged. However, a digital signal can have deteriorated to the point where a minor equipment fault or a few extra meters of cable can cause a catastrophic failure. EDH has been developed as a way of avoiding this type of situation and is supported by SMPTE RP165 as an on-line quality checking system.

The concept of EDH

The concept of EDH is very simple. The data bits making up the each frame of a serial digital video signal are 'counted' to generate a check sum. This check sum is inserted in the blanking interval of the same video frame. At a later point along the path of the video signal, the check sum for each individual video frame is recalculated and compared to the check sum carried in its blanking period. If the sums do not agree, then data corruption has occurred somewhere between these two points.

In a practical system this basic concept is expanded and refined to become a valuable tool in an operational environment. The ultimate use of EDH in a system is that every item of video equipment has the ability to carry out this checking process so that the precise point of data corruption can be located.

EDH in practice

Once the check sums have been attached to each frame of a video signal, identifying the point where data errors have been introduced is carried out by a three-part, frame-by-frame, checking process:

- The check sum for the frame is recalculated.
- This check sum is compared to the check sum in the blanking interval. If they do not agree, a warning flag is generated to warn of data corruption earlier in the signal path.
- The recalculated check sum is inserted into the blanking period, replacing the previous one so that the checking process can continue.

This recalculating and comparing process can happen as often as required, the more frequently it is done the greater the accuracy in determining where data corruption has occurred in the signal path.

Error reporting

Errors are reported in five different ways:

- Error detected here, edh
- Error detected already, eda
- Unknown error status, ues
- Internal error detected here, idh
- Internal error detected already, ida

The last two reports, idh and ida, are used when a piece of equipment has the capability to check for data corruption between its input and output.

EDH actually checks and reports each video frame in three ways, calculating separate check sums for the complete frame, the active picture area and the ancillary area. (The ancillary area is the area of the frame blanking interval that can contain digital audio signals and other multiplexed information.) A reason for this division of areas is so that errors in the active picture area can be given a higher fault priority, simply because they have direct effect on the program audience.

Sony is supporting EDH, and an increasing number of relevant products (down to board level in some cases) now have the ability to provide a visual eda report with an LED indicator.

EDH and ISR

In an overall system, EDH-equipped devices can report to a computer network, with status indication displayed by a PC. EDH is complementary to the well-established Sony ISR (Interactive Status Reporting) system, which can be used to report EDH status checks. In this way, detailed information on the performance of individual pieces of equipment is combined with information on the performance of their interconnections.

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