SONY

Video and Audio Interfacing Guide Book 2007–2008

SONY

Video and Audio Interfacing Guide Book

2007–2008

Distributed by

MK10445V1TC07NOV

Contents

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)	
	HKSP-061M	8 x 4		16 x 8		●		With HKSP-300	
HD SD/SDI video AES/EBU Analog audio Timecode RS-422A	IXS-6700	128 x 136	●			●	●	●	
	IXS-6600	64 x 68							

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.

	Alarm output	ISR support	Backup PSU/CPU option	Board option				Rack height
				Monitor	Input	Output	Matrix	
	●		Standard		●	●	●	22
			Standard		●	●	●	8
								4

Routing Switcher Options

Routing switcher type	Backup CPU boards	Backup Power Supply Units	Monitoring output	Input	
HDS-X5800	Standard	Standard	Standard	HKS-5810M(HD/SD) HKS-5810SD(SD)	
IXS-X6700	Standard	Standard		IKS-V6010M(HD/SD) IKS-V6010SD(SD) IKS-A6011(AES/EBU Balanced) IKS-A6012(AES/EBU Unbalanced) IKS-A6015(SRC) IKS-A6010(RS-422A) IKS-A6013 (Analog Audio) IKS-A6010 (Time Code)	
IXS-X6600					

	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)
	IKS-V6050M(HD/SD) IKS-V6050SD(SD) IKS-A6050 (Audio, RS-422A, Time Code)	IKS-V6060M(HD/SD) IKS-V6060SD(SD) IKS-A6061(AES/EBU Balanced) IKS-A6062(AES/EBU Unbala) IKS-RS6060(RS-422A) IKS-A6063 (Analog Audio) IKS-A6060 (Time Code)		IKS-6030M

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 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 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.

	PFV-SP/HKSP Series	PFV-L Series
Mounting frame	PFV-SP3300 PFV-SP3100	PFV-L10/PAC
SDI distribution amplifier	HKPF-SP003	BKPF-L603 BKPF-L612
SDI monitoring distribution amplifier		BKPF-L613C
Video A to D converter		BKPF-L601C
Video D to A converter		BKPF-L602C
Audio/video multiplexer	HKSP-105	BKPF-L605
Audio/video demultiplexer	HKSP-106	BKPF-L606
Digital video delay line	HKSP-008HD	BKPF-L608C
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
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
HD to 525/625 downconverter	HKSP-525	
525/625 to HD up-converter	HKSP-1125	
Digital video 8 x 2 selector	HKSP-061M	
S-BUS expander/repeater		BKPF-L803
Routing switcher controller	HKSP-R80 HKSP-R81	
Digital video processor	HKSP-313	
Universal control panel	UCP-8060	

		Input formats					
		NTSC/PAL	**YCbCr or RGB**	**Component serial digital**	**Composite serial digital**	**HD serial digital**	
Output formats	**NTSC**	BKPF-L703A (NTSC output)		BKPF-L613C BKPF-L632 BKPF-L642			
	YCbCr or RGB			BKPF-L602C			
	Component serial digital	BKPF-L641	BKPF-L601	BKPFL603 BKPF-L605 BKPF-L606 BKPF-L608C BKPF-L612 BKPF-L613C HKPF-SP003 HKSP-061M		HKSP-525	
	Composite serial digital				BKPF-L603 BKPF-L605 BKPF-L606 BKPF-L612 HKPF-SP003		
	HD serial digital	HKSP-1125 (NTSC only)		HKSP-1125	NKSP-1125 (NTSC only)	HKPF-SP003 HKSP-061M HKSP-313 HKSP-1125 (Bypass only)	
	HD-SDTI						
	AES/EBU digital audio			BKPF-L606	BKPF-L606		
	Analog audio						
	S-BUS control						

	HD-SDTI	AES/EBU digital audio	Analog audio	Ethernet control
		BKPF-L605		
		BKPF-L605		
	HKPF-SP003			
		BKPF-L653	BKPF-L751	
		BKPF-L752	BKPF-L753A	
				BKPF-L803 HKSP-R80 HKSP-R81

Video system	Digital standard	HD/SD digital video distribution amp	HD frame synchronizer	
		HKPF-SP003	HKSP-008HD	
1920 x 1080/60i 1920 x 1035/59.94i	(BTA S-002B)	●	●*	
	(SMPTE 240M)	●	●*	
	(SMPTE 260M)	●	●*	
1920 x 1080/60i	SMPTE 274M	●	●*	
1920 x 1080/59.94i		●	●*	
1920 x 1080/50i		●	●*	
1920 x 1080/30PsF		●	●*	
1920 x 1080/29.97PsF		●	●*	
1920 x 1080/25PsF		●	●*	
1920 x 1080/24PsF		●	●*	
1920 x 1080/23.98PsF		●	●*	
1280 x 720/60p	SMPTE 296M	●	●*	
1280 x 720/59.94p		●	●*	
Auxiliary data standard	SMPTE 291M	●	●*	
Serial digital standard	SMPTE 292M	●	●	
Embedded audio standard	SMPTE 299M BTA S-006B	●	●*	
AES/EBU digital audio signal standard	SMPTE 276M			
Serial digital standard	BTA S-004B	●	●	
Auxiliary data standard	BTA S-005B	●	●*	

* when audio process is OFF
(SMPTE 240M) analog signal parameter standard
(SMPTE 240M) bit parallel interface standard

	HD/SD digital video 8 x 4 selector	HD-SD down-converter board	SD-HD up-converter board	HD color corrector board	HD A/V multiplexer board	HD A/V demultiplexer board
	HKSP-061M	HKSP-525	HKSP-1125	HKSP-313	HKSP-105	HKSP-106
	●			●	●	●
	●	●	●	●	●	●
	●	●	●	●	●	●
	●			●	●	●
	●	●	●	●	●	●
	●	●	●	●	●	●
	●			●	●	●
	●			●	●	●
	●			●	●	●
	●			●	●	●
	●		●	●	●	●
	●	●	●	●	●	●
	●	●	●	●	●	●
	●	●	●	●	●	●
						●
	●	●	●	●	●	●
	●	●	●	●	●	●

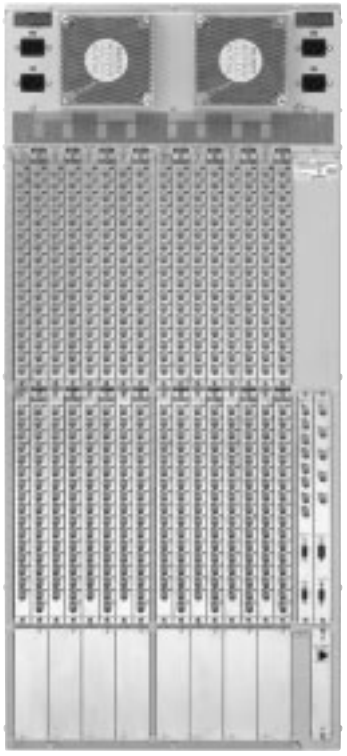
Routing Switchers

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 without an external distributor. 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 * Remote monitoring and maintenance via network using BZNW-5000 Series software * Fully redundant internal controllers and power supplies as standard * Front loading and hot swap modules * Low



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-240 Status Monitoring 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

Specifications

Inputs/outputs

Serial digital input:
SDI IN connector (BNC type)
(up to 264 in steps of 33) 0.8 Vp-p ±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

IXS-6600 Integrated Routing System

The IXS-6600 is a routing switcher that can handle HD-SDI and SD-SDI, AES/EBU, Analog Audio, RS-422A, and Timecode within a single chassis. IXS-6600 is equipped with a common Ethernet interface, allowing a sophisticated, yet easy-to-configure network-based control system to be established. Sony S-BUS interface is also provided to enable easy integration into existing routing systems. Integration with Sony MVS-8000G and DVS-9000 switchers is available, bringing a number of great benefits such as bidirectional operational control, source name exchange and tally management. Packing many features into a compact 4RU chassis, IXS-6600 is a cost-effective, yet smart solution for installation into a broad range of facilities, including those limited by space.

Features

* Multi-format capability including HD-SDI, SD-SDI, AES/EBU, RS-422A, and Timecode * Video routing capability: up to 64 x 68 matrix * Re-clocking capability including DVB-ASI. * Audio routing capability: AES/EBU, up to 128 x 136 matrix * Control system by Ethernet and S-BUS system * High reliability achieved by a main and a backup CPU board, and redundant power supply units as standard * Self diagnostic function * Compact and lightweight design * Easy maintenance

IXS-6600 Rear View

Configuration example

HD/SD Video	32x34
AES/EBU Audio	32x34
RS-422A	14 ports

Specifications

General

Main Frame:
2 Power supply unit (1+1 redundancy), main and backup CPU boards
Power requirements:
100 V to 240 V AC ±10%, 50/60 Hz
Power consumption:
max. 300 W
Operating temperture:
5 to 40 °C (41 °F to 104 °F)
Storage temperture:
-20 °C to 60 °C (-4 °F to 140 °F)
Operational humidity:
10 to 90% RH
Dimensions (WxHxD):
440 x 176 x 520 mm (4RU) (17 3/8 x 7 x 20 1/2 inches)
Mass:
26 kg (fully loaded) (57 lb 5 oz)

Inputs/outputs

REMOTE 1 (S-BUS):
Sony S-BUS, BNC type x 3
Data transfer rate: 312 kb/s or 1250 kb/s
Data transfer method: Bi-phase Space
REMOTE 2:
D-sub 9-pin (female) x 2*, complies with RS-422A
Protocol:Sony Cart++ Data transfer rate:38.4kb/s
REMOTE 3:
D-sub 9-pin (male) x 1, complies with RS-232C signal standard for connecting a control terminal
Timecode IN:
BNC type x 1
ALARM OUT:
Mini D-sub 9-pin (female) x 1, Parallel, Open collector outputs, 4-ch*
REF IN:
BNC type x 2, tri-level sync or burst signal
WORD CLOCK:
BNC type x 1
NETWORK:
RJ-45 x 2, 100BASE-TX

*One of REMOTE2 connector is selectable between RS-422A and ALARM OUT.

Optional Products

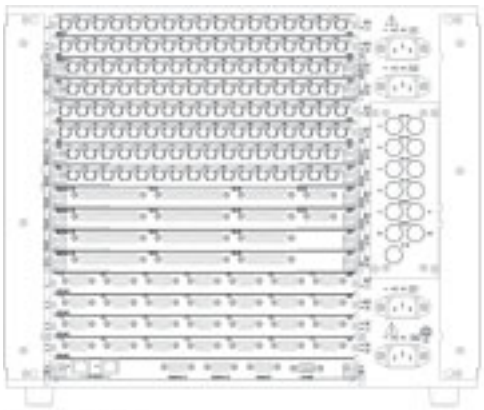
IKS-V6010M HD/SD digital video input board
IKS-V6010SD SD digital video input board
IKS-A6011 D-SUB AES/EBU input board
IKS-A6012 BNC AES/EBU input board
IKS-A6013 analog audio input board
IKS-A6015 sampling rate converter board
IKS-A6063 analog audio output board
IKS-RS6010 RS-422A input board
IKS-RS6060 RS-422A output board
IKS-TC6010 16 time code input board
IKS-TC6060 17 time code output board
IKS-6030M matrix board
IKS-V6050M HD/SD video router processor board
IKS-V6050SD SD video router processor board
IKS-A6050 audio/digital router processor board
IKS-A6061 D-SUB AES/EBU output board
IKS-A6062 BNC AES/EBU output board
IKS-V6060M HD/SD digital video output board
IKS-V6060SD SD digital video output board

IXS-6700 Integrated Routing System

The IXS-6700 is a routing switcher that can handle HD-SDI and SD-SDI, AES/EBU, RS-422A, and Timecode within a single chassis. IXS-6700 is equipped with a common Ethernet interface, allowing a sophisticated, yet easy-to-configure network-based control system to be established. Sony S-BUS interface is also provided to enable easy integration into existing routing systems. Integration with Sony MVS-8000G and DVS-9000 switchers is available, bringing a number of great benefits such as bidirectional operational control, source name exchange and tally management. Packing many features into a compact 8RU chassis, IXS-6700 is a cost-effective, yet smart solution for installation into a broad range of facilities, including those limited by space.

Features

* Multi-format capability including HD-SDI, SD-SDI, AES/EBU, RS-422A, and Timecode * Video routing capability: up to 128 x 136 * Re-clocking capability including DVB-ASI. * Audio routing capability: AES/EBU up to 256 x 272 matrix * Self diagnostic function * Control system by Ethernet and S-BUS system * High reliability achieved by a main and a backup CPU board, and redundant power supply units as standard * Compact and lightweight design * Easy maintenance



IXS-6700 Rear View

Configuration example

HD/SD Video	64x68
AES/EBU Audio	64x68
RS-422A	28 ports

Specifications

General

Main Frame:
4 Power supply unit (2+2 redundancy), main and backup CPU boards
Power requirements:
100 V to 240 V AC ±10%, 50/60 Hz
Power consumption:
max. 550 W
Operating temperture
5 to 40 °C (41 °F to 104 °F)
Storage temperture:
-20 °C to 60 °C (-4 °F to 140 °F)
Operational humidity:
10 to 90% RH
Dimensions (WxHxD):
440 x 354 x 520 mm (8RU) (17 3/8 x 14 x 20 1/2 inches)
Mass:
46 kg (fully loaded) (101 lb 7 oz)

Inputs/outputs

REMOTE 1 (S-BUS):
Sony S-BUS, BNC type x 4
Data transfer rate: 312 kb/s or 1250 kb/s
Data transfer method: Bi-phase Space
REMOTE 2:
D-sub 9-pin (female) x 2, complies with RS-422A
Protocol: Sony Cart++ Data transfer rate: 38.4 kb/s
REMOTE 3:
D-sub 9-pin (male) x 1, complies with RS-232C signal standard for connecting a control terminal
Timecode IN:
BNC type x 1
ALARM OUT:
Mini D-sub 15-pin (female) x 1, Parallel, Open collector outputs, 6-ch
REF IN:
BNC type x 2 with loop-through output, tri-level sync or burst signal
WORD CLOCK:
BNC type x 2 with loop-through output
NETWORK:
RJ-45 x 2, 100BASE-TX

Optional Products

IKS-V6010M HD/SD digital video input board
IKS-V6010SD SD digital video input board
IKS-A6011 D-SUB AES/EBU input board
IKS-A6012 BNC AES/EBU input board
IKS-A6013 analog audio input board
IKS-A6015 sampling rate converter board
IKS-A6063 analog audio output board
IKS-RS6010 RS-422A input board
IKS-RS6060 RS-422A output board
IKS-TC6010 16 time code input board
IKS-TC6060 17 time code output board
IKS-6030M matrix board
IKS-V6050M HD/SD video router processor board
IKS-V6050SD SD video router processor board
IKS-A6050 audio/digital router processor board IKS-A6061 D-SUB AES/EBU output board
IKS-A6062 BNC AES/EBU output board
IKS-V6060M HD/SD digital video output board
IKS-V6060SD SD digital video output board

BKS-R1617A Multi-Display Control Unit

The BKS-R1617A multi-display control unit controls matrix cross points in routers connected to an S-BUS system. The BKS-R1617A 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-R1617A 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

IXS-6600 Integrated Routing System
IXS-6700 Integrated Routing System
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 (for the U.S.A. and Canada)
- 100 to 240 V AC (for the other countries) 50/60 Hz

Current consumption:
- 0.35 to 0.15 A

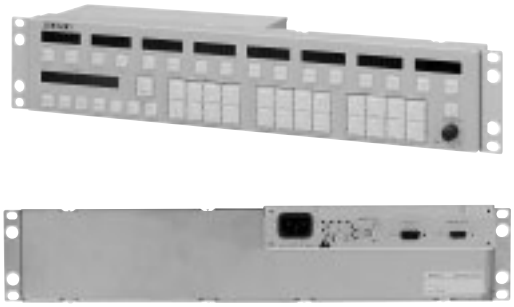
Operating temperature:
- 5 to 40 °C (41 to 104 °F)

Dimensions (W x H x D):
- 440 x 43.6 x 90 mm (17 3/8 x 1 3/4 x 3 5/8 inches)

Mass:
- Approx. 1.5 kg (3 lb 5 oz)

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.



Rear Panel

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

IXS-6600 Integrated Routing System
IXS-6700 Integrated Routing System
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

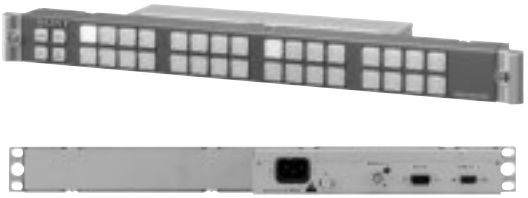
Operating temperature:
- 0 to 45 °C (32 to 113 °F)

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)

BKS-R3219A Universal Control Unit

The BKS-R3219A universal control unit controls matrix cross points in routers connected to an S-BUS system. The BKS-R3219A 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-R3219A 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

IXS-6600 Integrated Routing System
IXS-6700 Integrated Routing System
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 (for the U.S.A. and Canada)
- 100 to 240 V AC (for the other countries)
- 50/60 Hz

Current consumption:
- 0.35 to 0.15 A

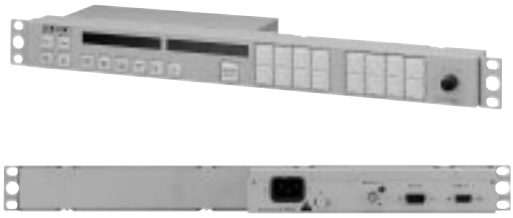
Operating temperature:
- 5 to 40 °C (41 to 104 °F)

Dimensions (W x H x D):
- 440 x 43.6 x 90 mm
- (17 3/8 x 1 3/4 x 3 5/8 inches)

Mass:
- Approx. 1.5 kg (3 lb 5 oz)

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

IXS-6600 Integrated Routing System
IXS-6700 Integrated Routing System
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

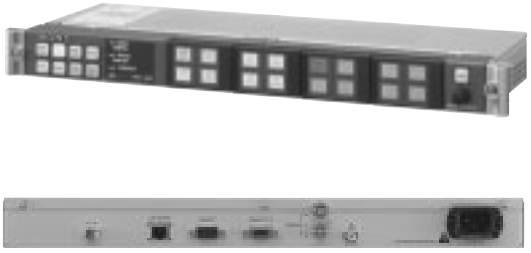
Operating temperature:
- 0 to 45 °C (32 to 113 °F)

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-R6010 UNIVERSAL LCD REMOTE PANEL

The BKS-R6010 is a control panel for a routing switcher, equipped with a large LCD display.
It can be controlled via both a 100BASE-TX Ethernet interface and an S-BUS control interface.



Rear Panel

Features

* Status indication on a large color TFT LCD display * Multi-function buttons that are equipped with color TFT LCD displays. They have the following functions: * Can be used to select sources, destinations and levels * Can light in different colors to indicate the functions currently assigned to each button * Displays user-defined names * Multiple naming using aliases (a single signal can have up to eight different names by using this function) * Dual control system: 100Base-TX Ethernet and S-BUS system for redundant control * Source selection using a clickable selector knob * Sauce and destination information on the LCD buttons can be switched by Page Up/Page Down buttons * Easy setup via a web browser (will be available in future software upgrade) * Switching of up to 1024 sources and 1024 destinations * Route function to show the selected source names of expanded sources * Up to 16 levels of control * Each level can have different sources (breakaway function) * Monitor function to watch the selection for the other destination * Chop function to automatically alternate between two sources at a designated interval * Phantom function (salvo function) to simultaneously switch multiple crosspoints at the touch of a button * Self-diagnostic function

Supplied Accessories

Operation and Installation Guide (1)
Y bridge (1)
Touch plate (Concave surface type) (4)
Touch plate (Plain surface type) (4)

Specifications

Control signal

REMOTE 1 A/B:
- BNC type x 2, S-BUS
- Data transfer method: BI-PHASE SPACE
- Data transfer rate: 312.5 kbps/1,250 kbps
- Signal transfer distance: 500 m (1,640 feet) (75 Ω coaxial cable, BELDEN 8281 or equivalent)

REMOTE 2:
- D-sub 9-pin x 1, RS-422
- Data transfer method: conforming to EIA RS-422A
- Data transfer rate: 38.4 kbps

RS-232C:
- D-sub 9-pin x 1, RS-232C
- Data transfer method: 8-bit, No parity, No check
- Data transfer rate: 38.4 kbps

TC IN:
- BNC type x 1

NETWORK:
- 100 BASE-TX: RJ-45 x 1

General

Dimensions (W x H x D):
- 440 x 43.6 x 155 mm (17 3/8 x 1 3/4 x 6 1/8 inches)

Mass:
- Approx. 2.2 kg (4 lb 14 oz)

Power requirements:
- 100 to 120 V AC (for the U.S.A. and Canada)
- 100 to 240 V AC (for other countries) 50/60 Hz

Current consumption:
- 0.7 A to 0.3 A

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

BZR-IF820 S-BUS/Ethernet Software

The BZR-IF820 software is an S-BUS/Ethernet conversion program for the HKSP-R80/R81 Routing Switcher Controller board. It is used to extend routing switcher S-BUS control between one routing system and another via an Ethernet based LAN/WAN. Two HKSP-R80/R81, each with the BZR-IF820 installed, must be used in pairs to establish connection between the two routing systems.

Features

* Uses a common hardware platform, the HKSP-R80/R81 routing switcher controller board
* Extends routing switcher control over an Ethernet based LAN/WAN

Applicable Models

HKSP-R80
HKSP-R81

BZR-IF830 4093 x 4093 Control Software

The BZR-IF830 4093 x 4093 Control Software is installed into the HKSP-R80/R81 Routing Switcher Controller board. The BZR-IF830 can expand the S-BUS space to up to 4093 x 4093 as well as control multiple primary stations. Each primary station can control any size of S-BUS space under 1024 x 1024 and the S-BUS space can overlap with other primary stations. This allows control risks to be minimized.

Features

* Uses a common hardware platform, the HKSP-R80/R81 routing switcher controller board * Expands S-BUS space to 4093 x 4093 * Up to sixteen primary station can be connect to the BZR-IF830 * Each Primary stations can be defined without limitation in it's own 1024 x 1024 space
* Minimized control risk
  - -Ethernet and S-BUS provide redundant control systems
  - -The BZR-IF830 provides risk management capabilities to minimize damage even if a single point of failure occurs on any controller or network
* Tie-line management permitted between primary stations

Applicable Models

HKSP-R80
HKSP-R81

Supplied Accessories

BZR-23 4093 x 4093 Setup Software

Optional Software

BZR-240 Status Monitoring Software

BZR-240 Status Monitoring Software

Real-time status monitoring software for Sony routing switcher system; cross-point, protect and tie-line status. The BZR-240 runs on a PC running Windows 2000 or Windows XP. It allows configuration of a Server/Client system, so multiple BZR-240s can be networked to one system. Communication between the BZR-240 and the Sony Routing Switcher Controller HKSP-R80 is achieved through Ethernet based networks allowing remote monitoring via LANs and WANs. The BZR-240 also provides user management functions for security.

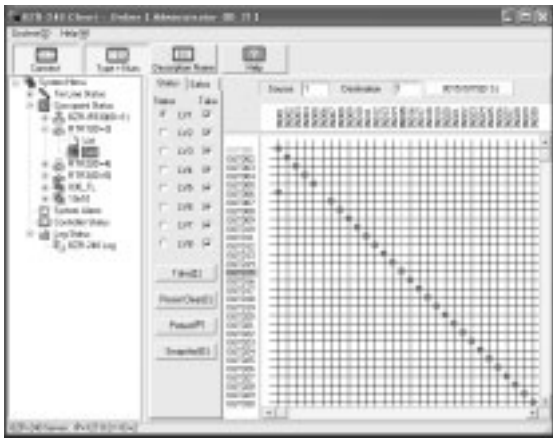
Allows real-time monitoring of Cross-point with Protection status, Tie-line status and Communication logs. Also allows Protection and Tie-line release functions for authorized users. Server and Client configuration allows up to 8 clients to monitor the routing switcher system. Monitoring the routing switcher system with only one PC is available. The BZR-240 provides user management functions, such as user registration and access authority limitation.
*To utilize the Status Monitoring Software BZR-240, the Sony Routing Switcher Controller HKSP-R80 is required as a primary station.

Features

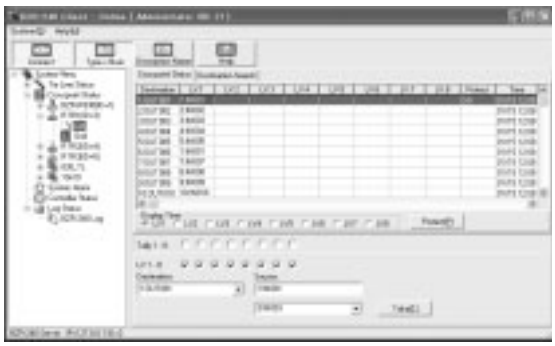
*Cross-point status display
Cross-point with Protection status is available. Two display modes are supported: Grid mode and List mode Cross-point area can be customized.
*Tie-Line status display
Tie-line status can be displayed.
Hours of using tie-line can be displayed by confirming Time stamp.
Tie-line trunk can be released.
*Communication log display
Communication log between the BZR-240 and the Sony Routing Switcher Controller HKSP-R80 can be stored and displayed.
*Server/Client Configuration
Server/Client system allows multiple monitoring terminals consisting of up to one server and eight clients.
Monitoring the routing switcher system with only one PC is available.
*User Management
User management function allows setup of each user's operation range.

Applicable Models

HDS-X5800 Multi Bit-Rate Routing Switcher
HKSP-R80 Routing Switcher Controller
BZR-IF830 4093 x 4093 Control Software



Cross-point Grid Status

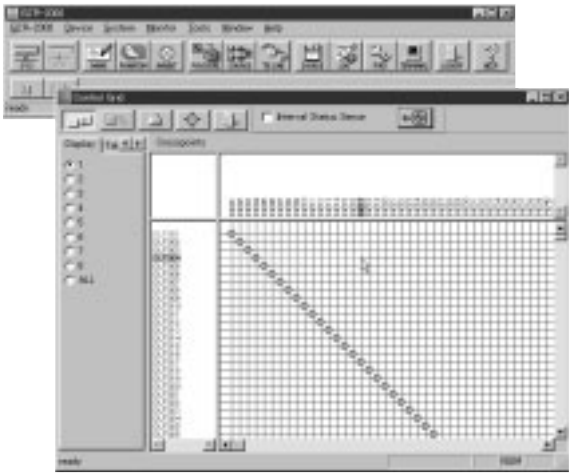


Cross-point List Status

Tie-Line List Status

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, Windows 98, Windows 2000, Windows NT™ or Windows XP, 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 or RS-232 terminal of a PC.



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/NT/2000/XP * 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 or RS-232C

Applicable Models

HDS-X5800 Multi Bit-Rate Routing Switcher
HKSP-R80 Routing Switcher Controller
IXS-6600 Integrated Routing System
IXS-6700 Integrated Routing System

Specifications

Note:
BZR-2000 supports the following Sony routing switchers and control panels.
Routing Switchers
* Used as a primary station:
HDS-X5800, IXS-6600/6700
HKSP-R80
* Used as a secondary station:
HDS-X5800, IXS-6600/6700
Control Panels
* Used as a secondary station:
BKS-R1617/R3216/R3219 (Firmware V1.03 and higher),
BKS-R1618/R3220

Interface Processor SP Series

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
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-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)

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

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

Rear Panel

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 — A redundant hot-swappable back-up power supply; Front panel status of power supply units, frame and module boards; Rear panel STATUS OUT connector

Supplied Accessories

Operation manual (1)
Installation manual (1)
Backup Power Supply Unit (2)

Optional Boards

HKPF-SP003 Digital Video Distribution Amp
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

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)

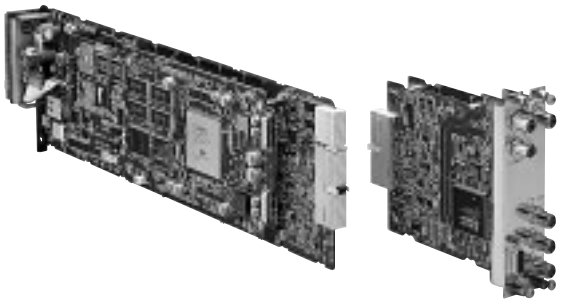
General

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 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.

Front Panel

Rear Panel

Applicable Models

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

Supplied Accessories

Installation manual (1)
Installation guide (1)

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 ±10%, 75 Ω
- Black Burst or Tri-level sync signal

Serial digital video outputs:
- SDI OUT connector (BNC type) (3)
- 0.8 Vp-p ±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)

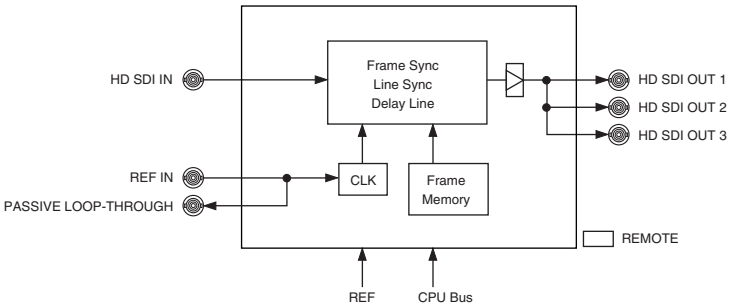
Storage temperature:
- -20 to 60 °C (-4 to 140 °F)

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)

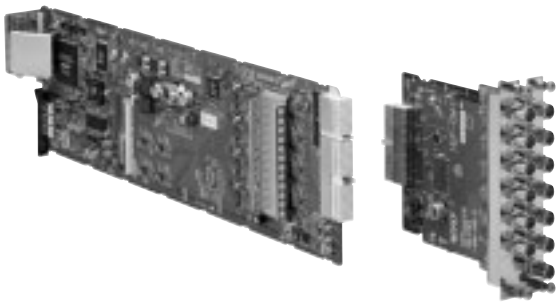
Mass
- Board:
  - Approx. 680 g (1 lb 8 oz)
- Connector Panel:
  - Approx. 300 g (11 oz)

Service part: Maintenance manual



HKSP-061M 8 x 4 Digital Video Selector

The HKSP-061M digital video selector board features eight inputs x four 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.

Front Panel

Rear Panel

Applicable Models

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

Supplied Accessories

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

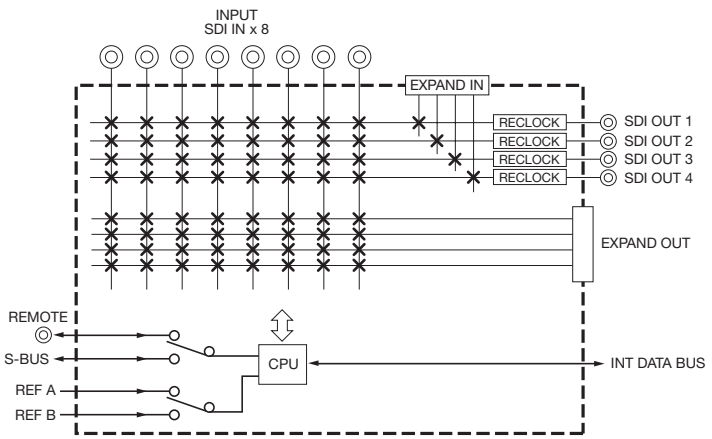
Specifications

- 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 ±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 °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 38 mm
  - (5 1/8 x 6 1/8 x 1 1/2 inches)

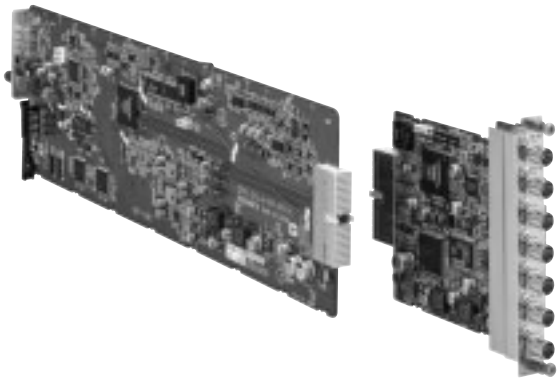
Mass
- Board:
  - Approx. 450 g (16 oz)
- Connector panel:
  - Approx. 300 g (11 oz)

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 (eight 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 (approximately 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

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

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

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)

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 ±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 0.2 UI

Digital input/output system delay

Video:
- Less than 1.5 µs

General

Power requirements:
- +12 V DC: less than 0.8 A

Power consumption:
- Approx. 9.6 W

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

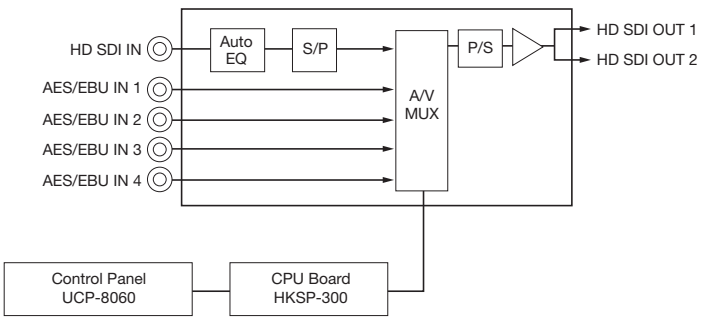
Storage temperature:
- -20 to 60 °C (-4 to 140 °F)

Operating humidity:
- 10 to 90 % (without condensation)

Dimensions:
- Board (H x W):
  - 119 x 398 mm
  - (4 3/4 x 15 3/4 inches)
- Connector panel (H x D x W):
  - 130 x 153 x 19 mm
  - (5 1/8 x 6 1/8 x 25/35 inches)

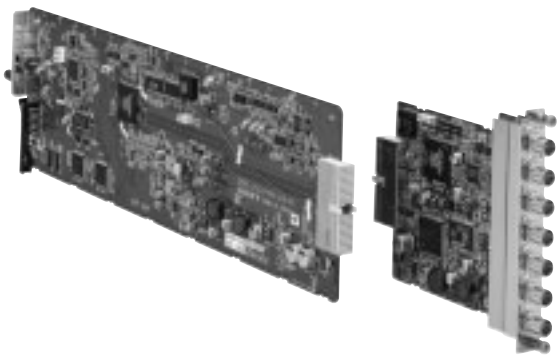
Mass
- Board:
  - Approx 400 g (14 oz)
- Connector panel:
  - Approx. 220 g (8 oz)

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



HKSP-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 (approximately 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.

Front Panel

Rear Panel

Applicable Models

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

Supplied Accessories

Operation manual (1)
Installtion manual (1)
Slot number label (1)

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)
  - DARS (Digital Audio Reference 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 ±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 0.2 UI
- 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 ±10%

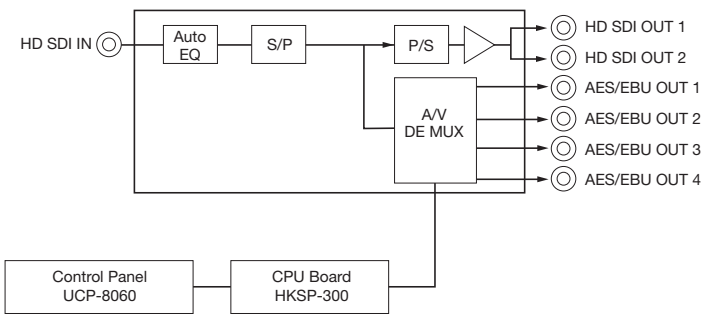
Digital input/output system delay

- Video:
  - Less than 1.8 µs

General

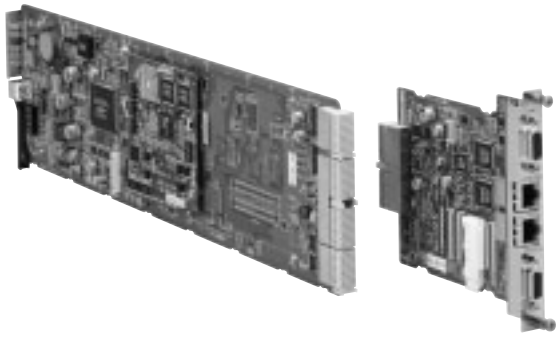
- Power requirements:
  - +12 V DC: less than 0.8 A
- Power consumption:
  - Max. 9.6 W
- Operating temperature:
  - 5 to 40 °C (41 to 104 °F)
- Storage temperature:
  - -20 to 60 °C (-4 to 140 °F)
- Operating humidity:
  - 10 to 90 % (without condensation)
- Dimensions:
  - Board (H x W):
    - 119 x 398 mm
    - (4 3/4 x 15 3/4 inches)
  - Connector panel (H x D x W):
    - 130 x 153 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

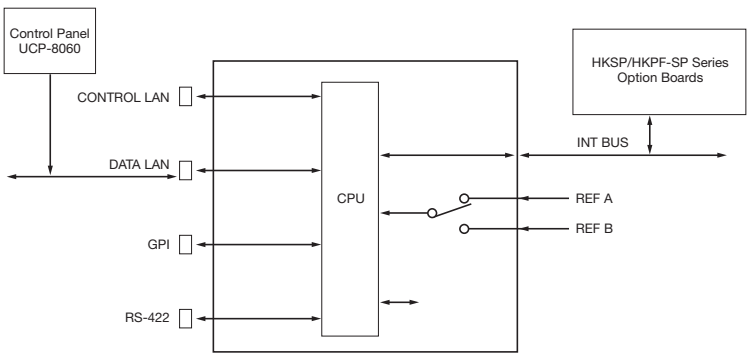
PFV-SP3100 Signal Processing Unit
PFV-SP3300 Signal Processing Unit

Supplied Accessories

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

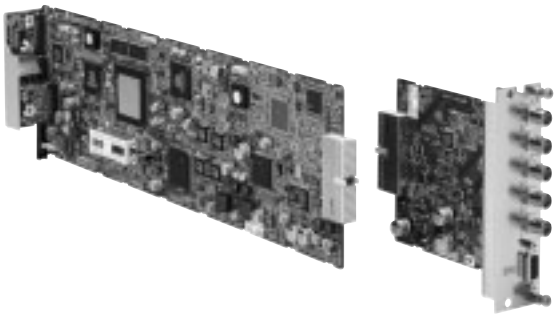
Specifications

- 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-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: 4 µ sec *Remotely controllable from an optional HKDV-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.

Front Panel

Rear Panel

Applicable Models

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

Supplied Accessories

Operation manual (1)
Installtion manual (1)
Slot number label (1)

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 ±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 ±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 0.2 UI

Digital input/output system delay

Video:
- 1 frame/L.T. 4 µ sec

General

Power requirements:
- +12 V DC: less than 1.9 A

Power consumption:
- Max. 23 W

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

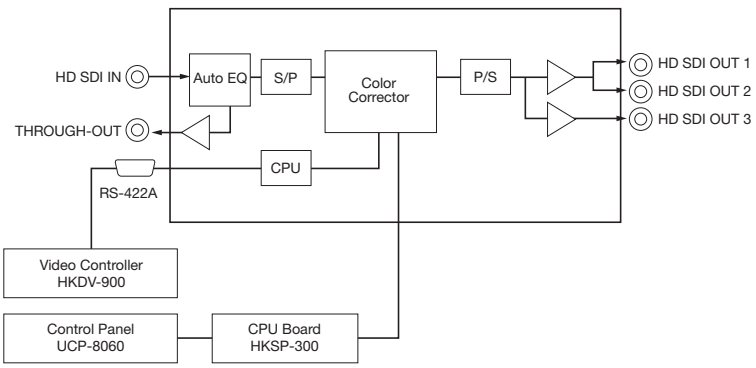
Storage temperature:
- -20 to 60 °C (-4 to 140 °F)

Operating humidity:
- 10 to 90 % (without condensation)

Dimensions
- Board (H x W): 119 x 398 mm (4 3/4 x 15 3/4 inches)
- Connector panel (H x D x W): 130 mm x 153 x 38 mm (5 1/8 x 6 1/8 x 1 1/2 inches)

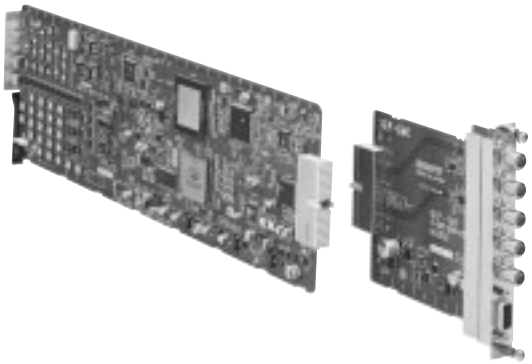
Mass
- Board: Approx 550 g (1 lb 3 oz)
- Connector panel: Approx. 210 g (7 oz)

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



HKSP-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 *Transfers ancillary data (VITC) from HD SDI signals to down-converted SD SDI signals *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-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.

Front Panel

Rear Panel

Applicable Models

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

Supplied Accessories

Operation manual (1)
Installtion manual (1)
Slot number label (1)

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 ±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 °C (41 to 104 °F)

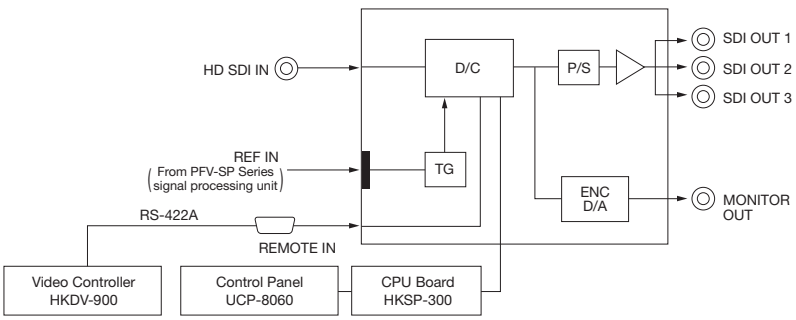
Storage temperature:
- -20 to 60 °C (-4 to 140 °F)

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 (H x D x W):
  - 130 x 152.5 x 19 mm
  - (5 1/8 x 6 1/8 x 25/35 inches)

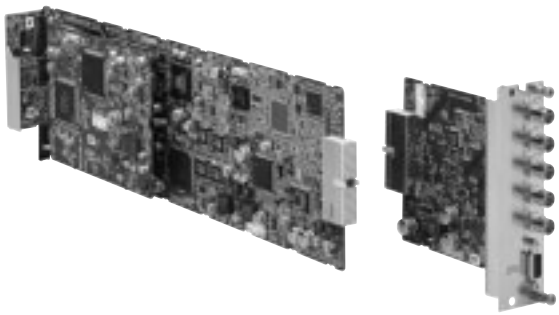
Mass:
- Board:
  - Approx. 1500 g (3 lb 5 oz)
- Connector panel:
  - Approx. 500 g (1 lb 2 oz)

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



HKSP-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 *When HD-SDI signals are detected, they are output directly without processing *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 *Transfers ancillary data (VITC and UMID) from SD signals to up-converted HD SDI signals *Disables output of Closed Caption data. *Remotely controllable from an optional HKDV-900 Digital Video Controller via a RS-422 (GPI also provided) or UCP-8060 Universal Control Panel (Ethernet 100BASE-TX) *Provides color matt *Aspect ratio modes selectable from Squeeze, Letter Box, Semi Letter Box (15:9, 14:9, 13:9), 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.

Front Panel

Rear Panel

Applicable Models

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

Supplied Accessories

Operation manual (1)
Installtion manual (1)
Slot number label (1)

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 ±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 0.2 UI

Digital input/output system delay

Video:
- 1frame
- 0.7 to 1.7 frames (frame synchronizer)

General

Power requirement
- 12VDC; Less Than 2.0A

Power consumption
- Max; 24W

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

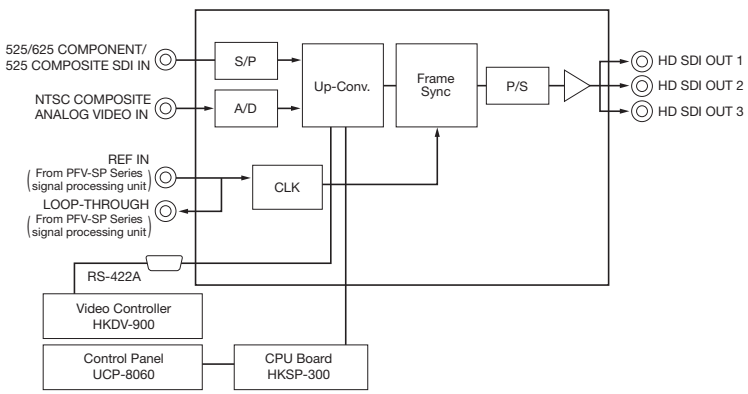
Storage temperature:
- -20 to 60 °C (-4 to 140 °F)

Operating humidity:
- 10 to 90% (no condensation)

Dimensions
- Board (H x W): 119 x 398 mm (4 3/4 x 15 3/4 inches)
- Connector panel (H x D x W): 130 x 153 x 38 mm (5 1/8 x 6 1/8 x 1 1/2 inches)

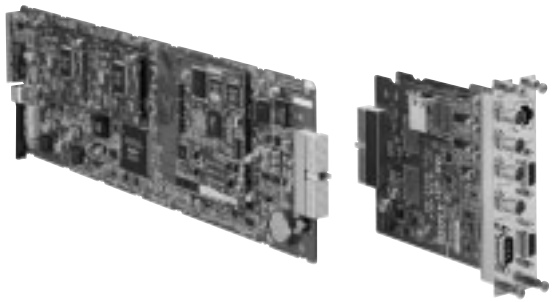
Mass
- Board: Approx 550 g (1 lb 3 oz)
- Connector panel: Approx. 210 g (7 oz)

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



HKSP-R80/81 Routing Switcher Controller

The HKSP-R80/81 routing switcher controller is a stand-alone primary station CPU board for Sony routing switchers. With the HKSP-R80/81 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-R80/81 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-R80/81 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 *Remote monitoring and maintenance via network using BZNW-5000 Series 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 Routing Switcher Backup Software / BZR-21 Router Remote Control Software / BZR-IF810 S-BUS SUB-NET Control Software)
75 Ω terminators (3)
T-bridge (1)

Optional Board

HKSP-R81 Routing Switcher Backup CPU

Optional Software

BZR-240 Status Monitoring Software
BZR-2000 Routing Switcher Control Software
BZR-IF820 S-BUS/Ethernet Software
BZR-IF830 4093 x 4093 Control Software

Specifications

Control signal

- 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-2342C
  - 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)

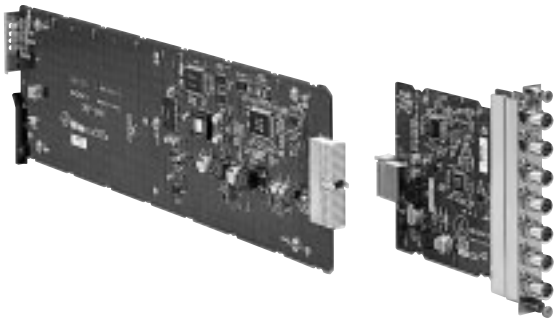
Rear Panel

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)

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

Specifications

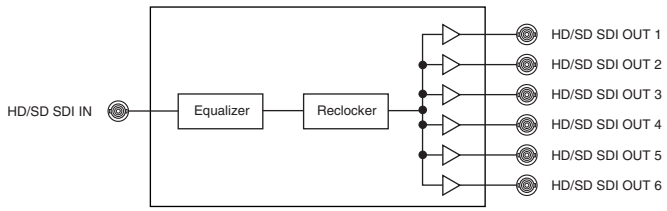
Inputs/outputs

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 ±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



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

HKSP-008HD GUI

HKSP-313 GUI

HKSP-105 GUI

HKSP-525 GUI

HKSP-106 GUI

HKSP-1125 GUI

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. Equipped as standard with a redundant power supply unit. This unit is identical to the standard power supply. In the event of a fault in the standard power supply, the redundant power suplly unit 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

Supplied Accessories

Backup Power Supply Unit (2)

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-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

Specifications

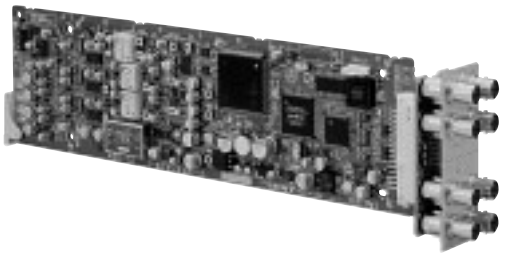
General

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
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

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.

Rear Panel

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)

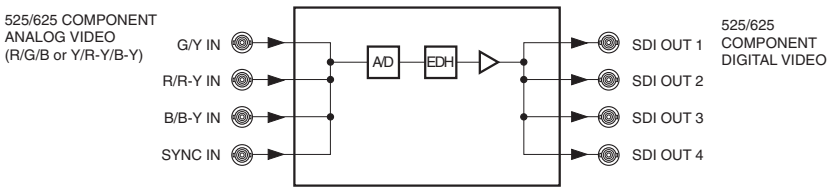
Operating temperature:
5 to 40 °C (41 to 104 °F)

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)

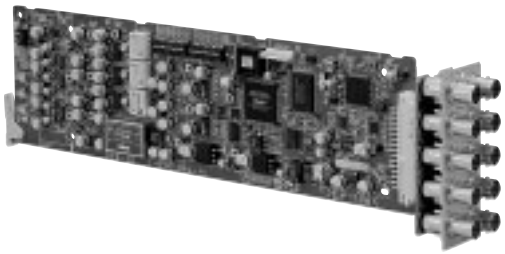
Mass
Board:
Approx. 140 g (5 oz)
Connector panel:
Approx. 120 g (4 oz)

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



BKPF-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.

Rear Panel

Applicable Models
PFV-L10 Interface unit

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

Specifications

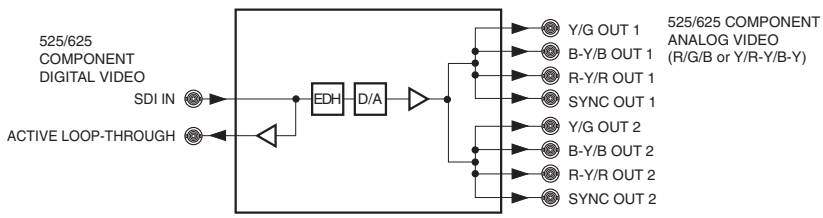
Inputs/outputs
- Serial digital input:
  - SDI IN connector (BNC type) (1)
  - 0.8 Vp-p-10%, 75 Ω
  - 4:2:2 component serial digital signal
- Serial digital outputs:
  - Active-through output connector (BNC type) (1)
  - 0.8 Vp-p-10%, 75 Ω
  - 4:2:2 component serial digital video signal
- Analog outputs:
  - 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

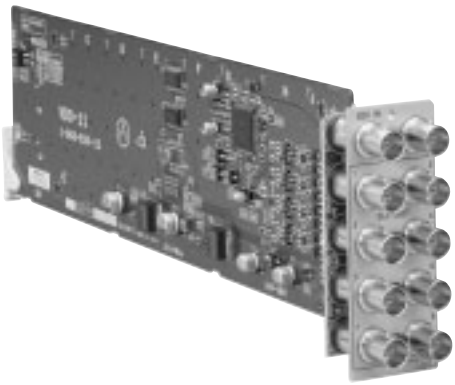
General
- Power requirements:
  - +5 V DC: 1.0 A
  - (Supplied from the PFV-L Series Interface Unit)
- Operating temperature:
  - 5 to 40 °C (41 to 104 °F)
- Operating humidity:
  - 10 to 90% (no condensation)
- Dimensions
  - Board (H x D):
    - 77 x 267 mm
    - (3 1/8 x 10 5/8 inches)
  - Connector 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

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

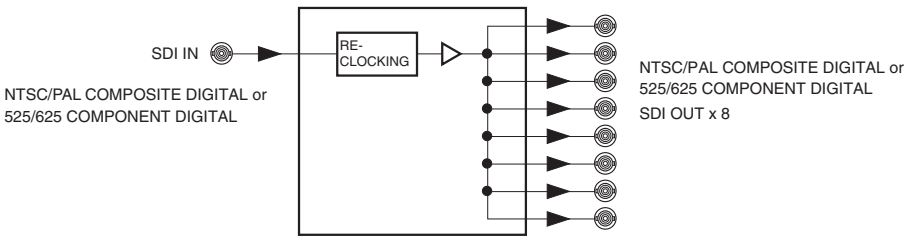
Data transmission

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

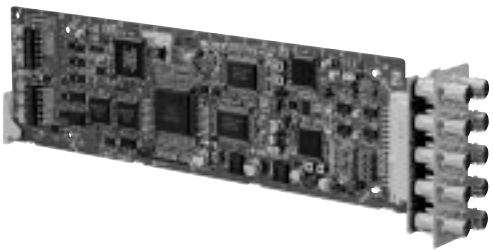
Power requirements:
+5 V DC: 0.3 A
(Supplied from the PFV-L Series Interface Unit)
Operating temperature:
5 to 40 °C (41 to 104 °F)
Operating humidity:
10 to 90% (no condensation)
Dimensions
Board (H x D):
77 x 267 mm
(10 5/8 x 3 1/8 inches)
Connector panel (W x H):
33 x 85 mm
(1 5/16 x 3 3/8 inches)
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

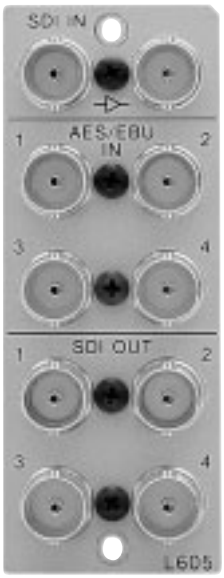
The BKPF-L605 is an audio/video multiplexer that embeds two AES/EBU stereo pairs (four individual channels) into a 525/625 component or NTSC composite serial digital video signal, offering lower system cost by reducing the number of modules required for multiple Audio Group multiplexing. By cascading 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.



Rear Panel

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

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

Specifications

Inputs/outputs

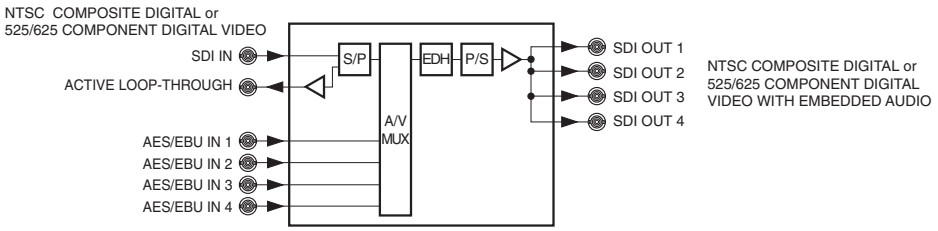
SDI
- SDI input:
  - SDI IN connector (BNC type) (1)
  - 4:2:2 component serial digital video signal or 4 fsc NTSC composite digital video signal conforming to SMPTE259M (selectable with on-board switch)
- Input impedance:
  - 75 Ω
- Cable length:
  - 200 m max. (When using a Belden 8281, Fujikura 5C2V 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

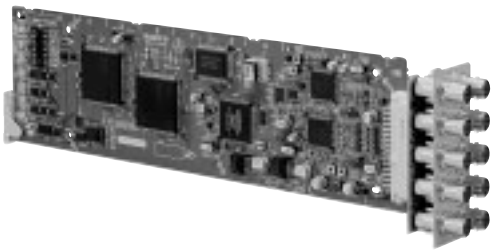
- Power requirements:
  - +5 V DC: 1.0 A
  - (Supplied from the PFV-L Series Interface Unit)
- Operating temperature:
  - 5 to 40 °C (41 to 104 °F)
- Operating humidity:
  - 10 to 90% (no condensation)
- Dimensions
  - Board (H x D):
    - 77 x 267 mm
    - (3 1/8 x 10 5/8 inches)
  - Connector panel (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



BKPF-L606 Audio/Video Demultiplexer Board

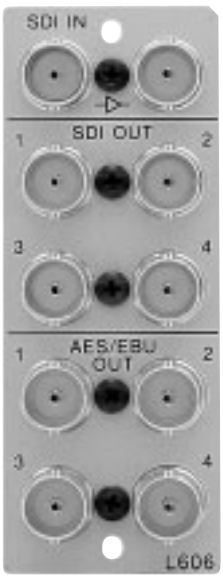
The BKPF-L606 is an audio/video demultiplexer board that extract AES/EBU format digital audio signals from a multiplexed 525/625 component serial or NTSC composite serial digital video signal. A single BKPF-L606 board will extract two AES/EBU stereo pairs (four audio channels). Up to eight AES/EBU stereo 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.



Rear Panel

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 outputs

Digital audio signal outputs:

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

Multiplex system:

Conforms to SMPTE 272M

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

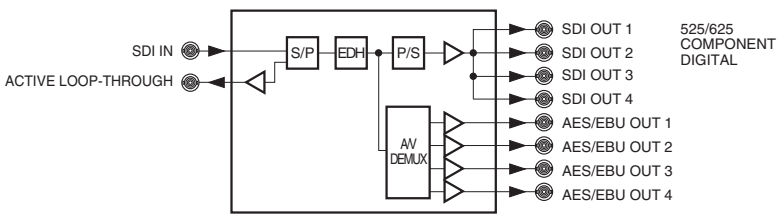
Board:

Approx. 130 g (5 oz)

Connector panel:

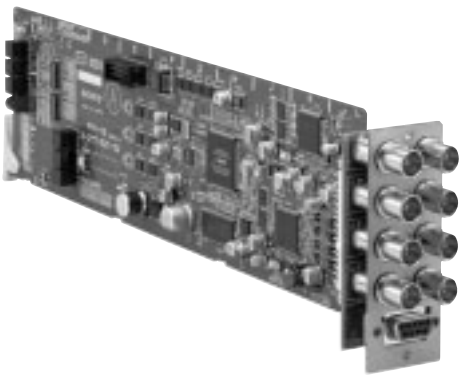
Approx. 120 g (4 oz)

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



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

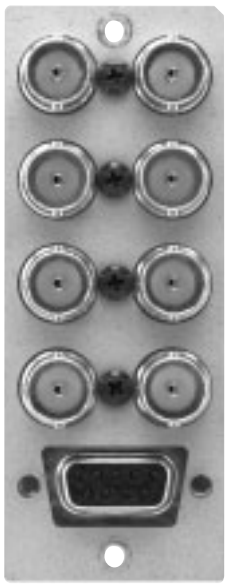
The BKPF-L608C is a 4:2:2 frame/line synchronizer board used to that synchronizes a 4:2:2 component serial digital video input signal to an external analog reference. This 10-bit serial 4:2:2 synchronizer features a Freeze control that is field/frame auto/manual selectable and also includes phase adjustment. 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.



Rear Panel

Applicable Models

PFV-L10 Interface unit

Supplied Accessories

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

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 ±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 ±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 µs (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 °C (41 to +104 °F)

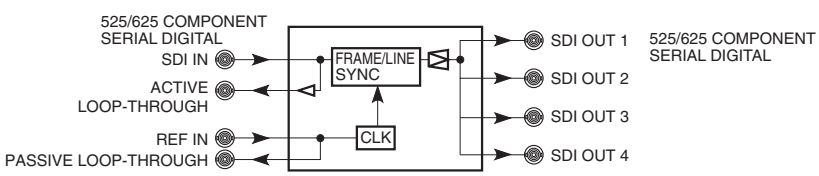
Storage temperature:
-20 to 60 °C (-4 to 140 °F)

Operating humidity:
10 to 90% (no condensation)

Dimensions
Board (H x W):
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)

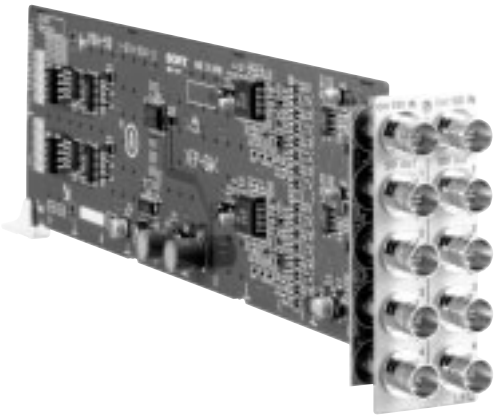
Mass
Board:
Approx. 130 g (5 oz)
Connector panel:
Approx. 120 g (4 oz)

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



BKPF-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.

Rear Panel

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 ±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 ±0.5 V

General

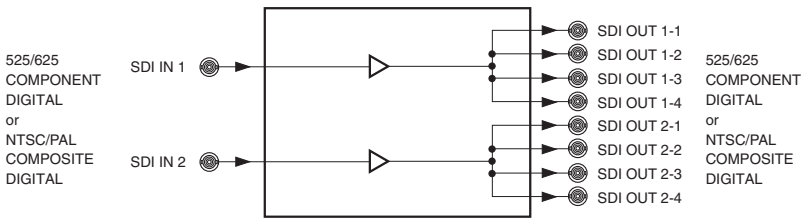
Power requirements:
+ 5 V DC: 0.6 A (supplied from the PFV-L Series Interface Unit)

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

Operating humidity:
10 to 90% (no condensation)

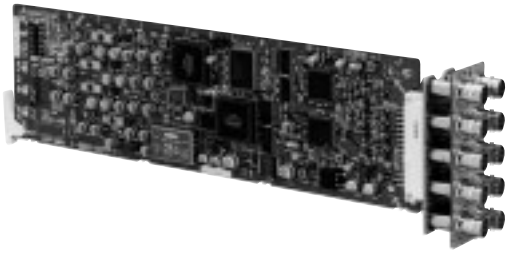
Dimensions
Board (H x D):
77 x 267 mm
(3 1/8 x 10 5/8 inches) (h/d)
Connector panel (W x H):
33 x 85 mm
(1 5/16 x 3 3/8 inches)

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



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

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 formats:
- 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)

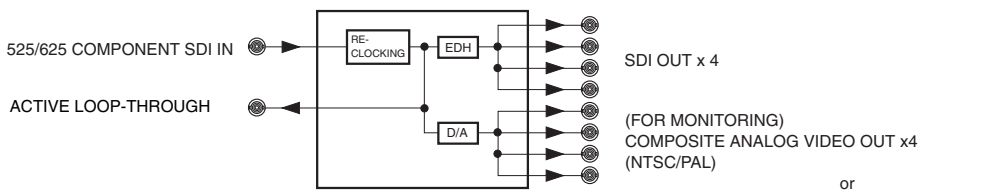
Operating temperature:
- 5 to 40 °C (41 to 104 °F)

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)

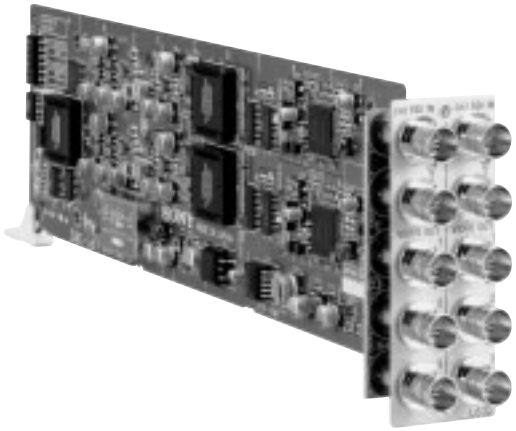
Mass
- Board:
  - Approx. 150 g (5 oz)
- Connector panel:
  - Approx. 120 g (4 oz)

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.

Rear Panel

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 ±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 ±3% (714 mVp-p/286 mVp-p), 75 Ω
PAL: 1.0 Vp-p ±3%, (700 mVp-p/300 mVp-p), 75 Ω

Analog Video Characteristics

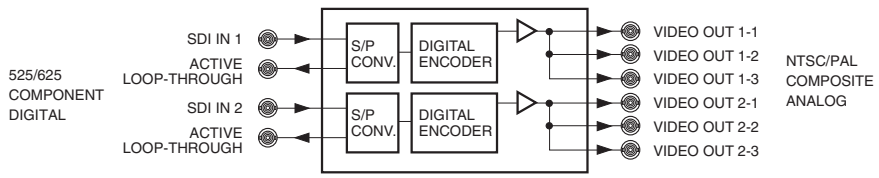
Sampling frequency:
27.0 MHz
Resolution:
10 bits (conversion from 8 bits to 10 bits)
Signal to noise ratio:
54 dB or more
Frequency response:
±0.5 dB
DG/DP:
NTSC: Less than 2%/2°
PAL: Less than 2%/3.5°
Y/C delay:
Less than ±20 ns

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)

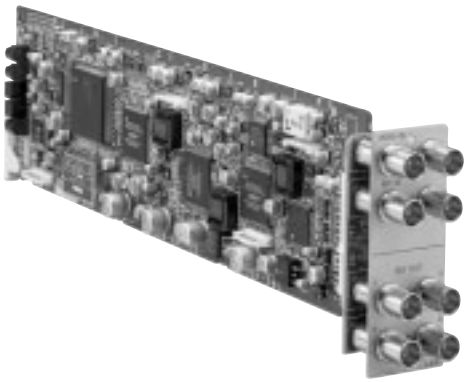
Mass
Board:
140 g (5 oz)
Connector panel:
100 g (4 oz)

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



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

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)

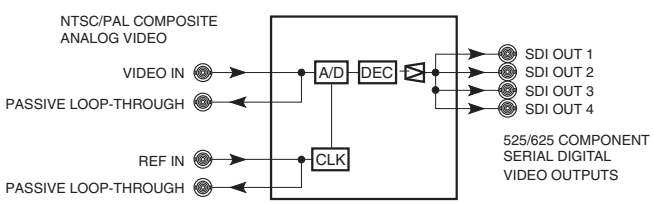
Video characteristics

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

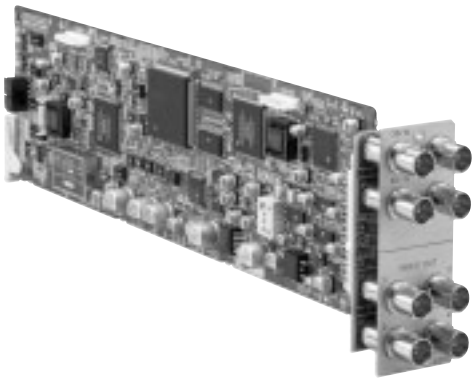
Power requirement:
+5 V DC: 1.4A
(Supplied from PFV-L Series Interface Unit)
Operating temperature:
5 °C to 40 °C (41 °F to 104 °F)
Storage temperature:
-20 to 60 °C (-4 to 140 °F)
Operating humidity:
10 to 90% (no condensation)
Dimensions
Board (H x W):
77 x 267 mm
(3 1/8 x 10 3/4 inches)
Connector 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

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

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)

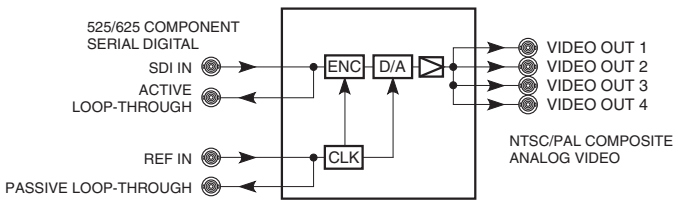
Storage temperature:
-20 to 60 °C (-4 to 140 °F)

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



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)

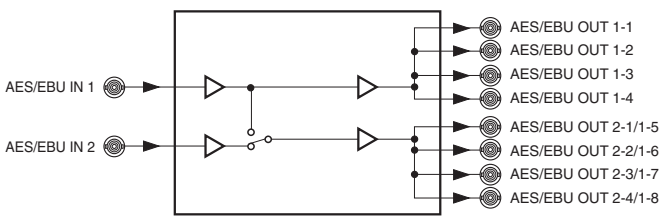
Output characteristics

- 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

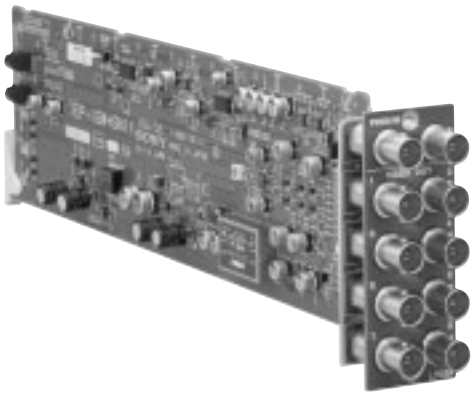
- Power requirements:
  - +5 V DC: 0.22 A (Supplied from the PFV-L Series Interface Unit)
- Operating temperature:
  - 5 to 40 °C (41 to 104 °F)
- Operating humidity:
  - 10 to 90% (no condensation)
- Dimensions
  - Board (H x D):
    - 77 x 267 mm (3 1/8 x 10 5/8 inches)
  - Connector panel (W x H):
    - 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

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 Vp-p, 75 Ω

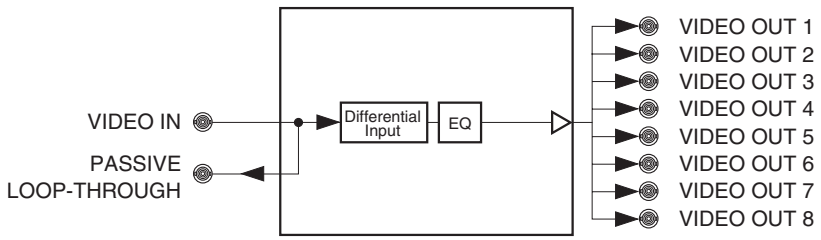
Video characteristics

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

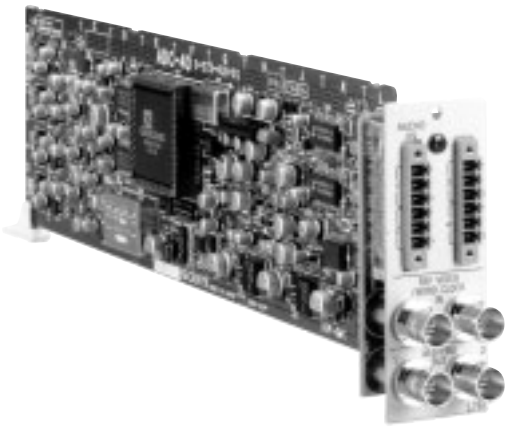
Power requirements:
+5 V DC: 250 mA (supplied from the PFV-L Series Interface Unit)
Operating temperature:
5 to 40 °C (41 to 104 °F)
Operating humidity:
10 to 90% (no condensation)
Dimensions
Board (H x D):
267 x 77 mm
(10 5/8 x 3 1/8 inches)
Connector panel (W x H):
33 x 85 mm
(1 5/16 x 3 3/8 inches)
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-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.

Rear Panel

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

Analog audio inputs:
AUDIO IN connectors (Phoenix type 6-pin)
(2; 4 channels -2 stereo pairs)
Input level:
+ 4 dBm (600 Ω/20 kΩ 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 ±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 ±20 nsp-p
DC offset:
Less than 0 ±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

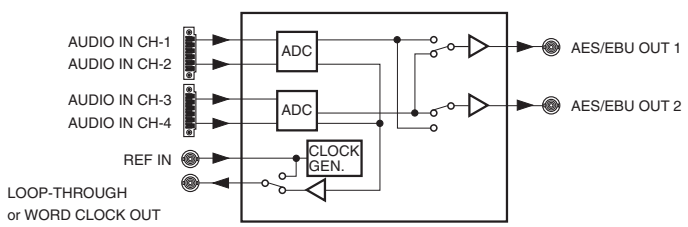
Sampling frequency:
48 kHz
Resolution:
24 bits
Head room:
20 dB (at +4 dBm)
Channel coding:
AES/EBU format
Frequency response:
Within +0.1/-0.2 dB (20 Hz to 20 kHz)
Distortion:
Less than 0.02%
Signal to noise ratio:
103 dB or more
Crosstalk:
Less than -90 dB (at under 15 kHz)
CMRR (Common Mode Rejection 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)

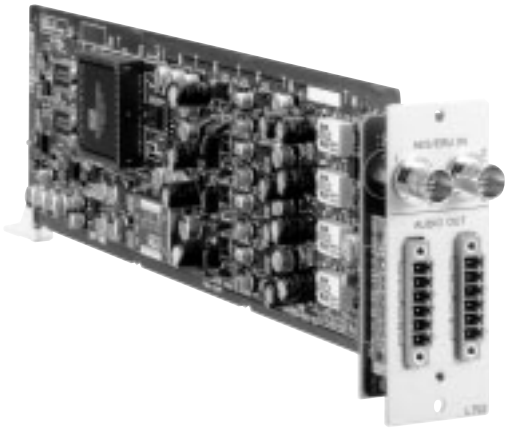
Dimensions
Board (H x D):
77 x 267 mm
(3 1/8 x 10 5/8 inches)
Connector panel (W x H):
33 x 85 mm
(1 5/16 x 3 3/8 inches)
Mass
Board:
160 g (6 oz)
Connector panel:
110 g (4 oz)

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

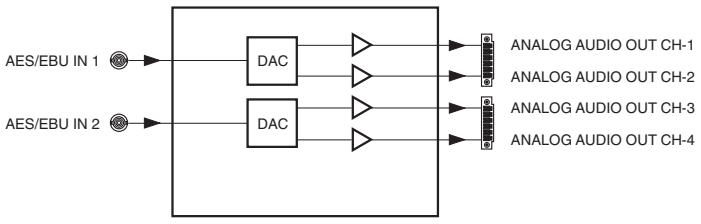
- Sampling frequency:
  - 48 kHz
- Resolution:
  - 24 bits
- Head room:
  - 20 dB (at +4 dBm)
- Channel coding:
  - AES/EBU format
- Frequency response:
  - Within 20 Hz to 20 kHz, +0.1/-0.2 dB
- Distortion:
  - Less than 0.02%
- Signal to noise ratio:
  - 95 dB or more
- Crosstalk:
  - Less than -90 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)

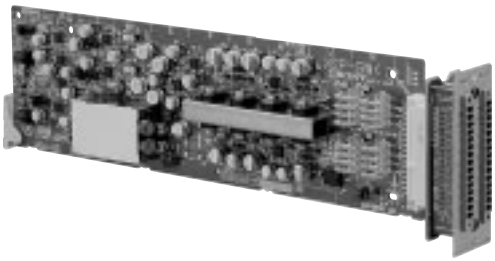
Service parts: Extension board (Part No.A-8322-598-A), Maintenance manual

Rear Panel



BKPF-L753A Analog Audio Distribution Board

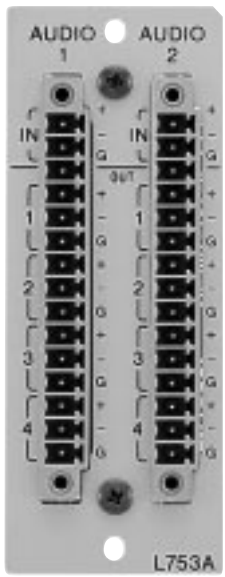
The BKPF-L753A analog audio distribution board distributes an analog stereo audio signal to four outputs or an analog monaural audio signal to eight outputs. A gain control allows the input reference level to be varied between -4 dBm and +12 dBm. Phoenix type connector for each distribution block carries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



Rear Panel

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

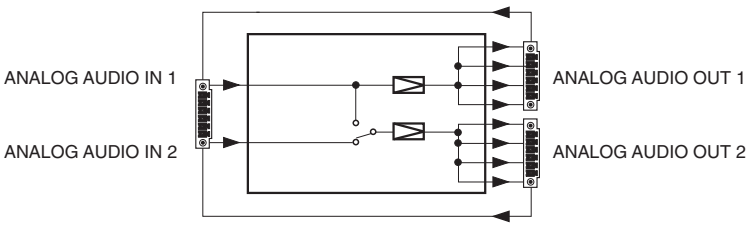
Inputs/outputs

- 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

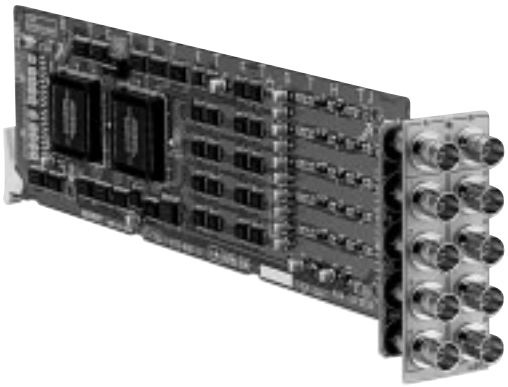
- Power requirements:
  - +5 V DC: 1.2 A
  - (Supplied from the PFV-L Series Interface Unit)
- Operating temperature:
  - 5 to 40 °C (41 to 104 °F)
- Operating humidity:
  - 10 to 90% (no condensation)
- Dimensions
  - Board (H x D):
    - 77 x 267 mm
    - (3 1/8 x 10 5/8 inches)
  - Connector panel (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



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

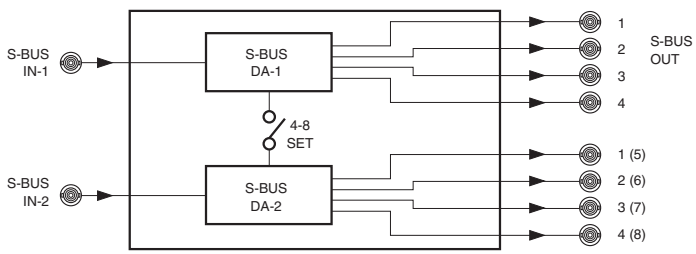
Inputs/outputs

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)

Rear Panel



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

Technical References

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 from multi-signal switching systems. The range includes:

- HDS-X5800/IXS-6000 Series, a range of multi bit-rate routing switchers
- 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 lager 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 lager 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 tallies.

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 assingment 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, interfacting 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-9000 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.

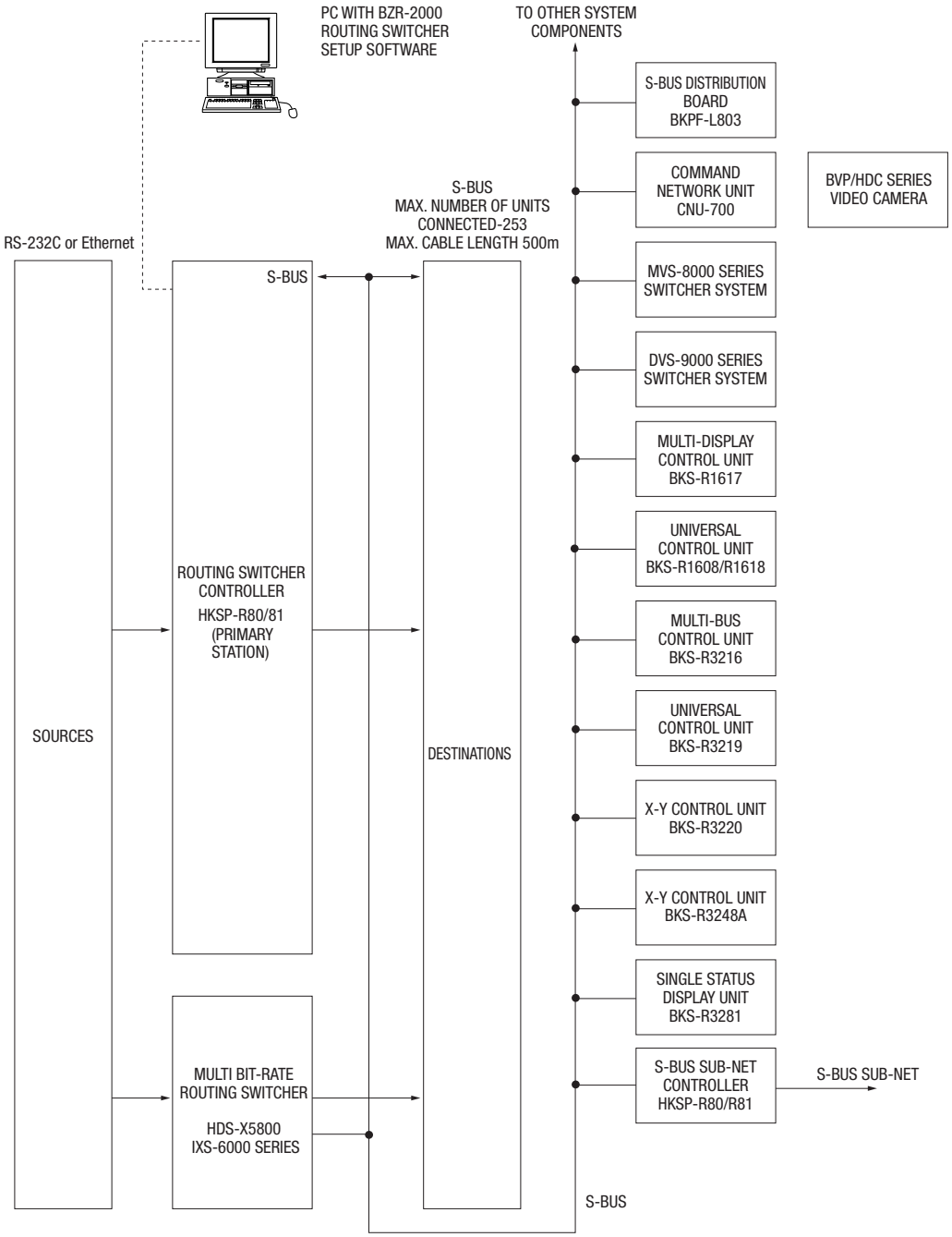
Critical Applications

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 interfacting 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

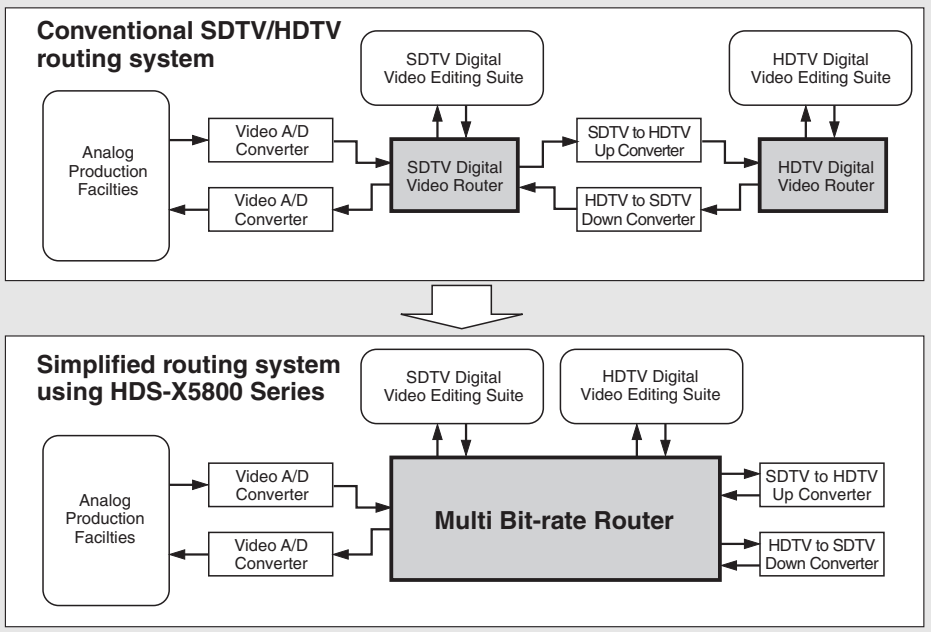


Powerful Matrix Control Functions of Sony HDS-X5800/IXS-6000 Series

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

Figure-1



Using the HDS-X5800 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 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:

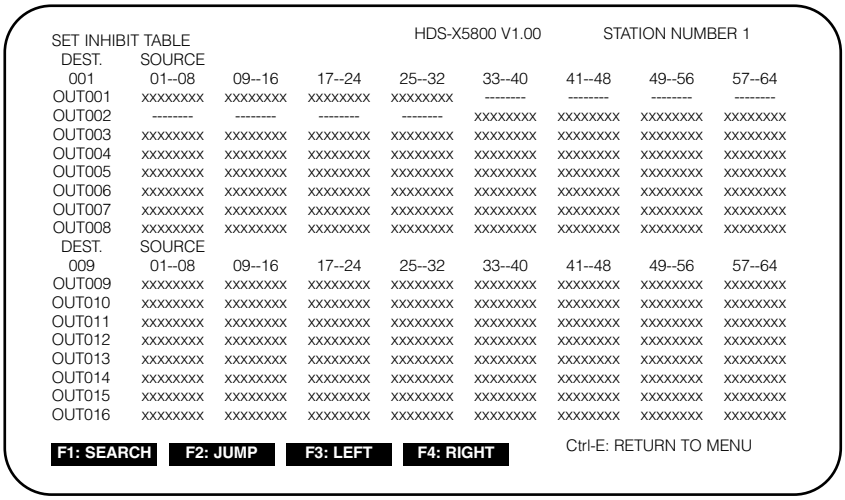
“Protect” function prevents the output destination from being re-assigned from another remote control panel.

“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.

Figure-2 Crosspoint disabling function



“-” mark is an inhibited crosspoint.

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.

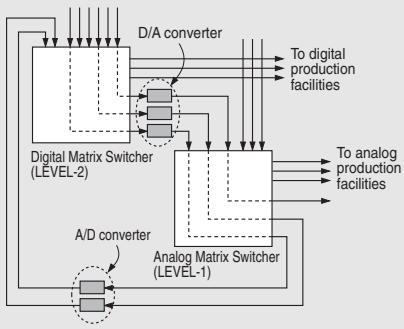
(1) “Type name (VTR, CAM, etc.) + Number”: 32 names each comprising up to four letters and three numbers.

(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.

Figure-3

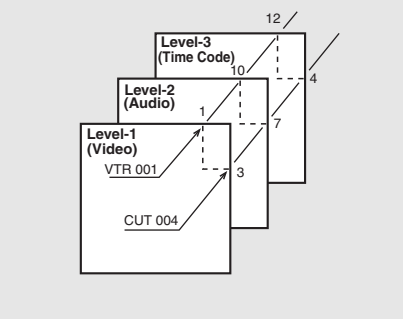


Tie-Line Function Concept Diagram

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-4



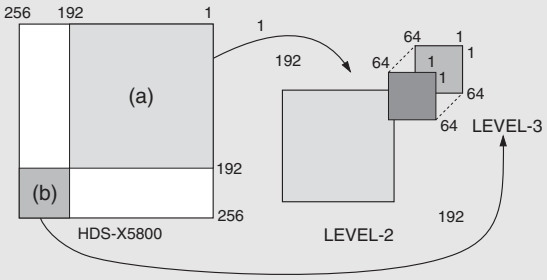
Free Input and Output Assignment

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).

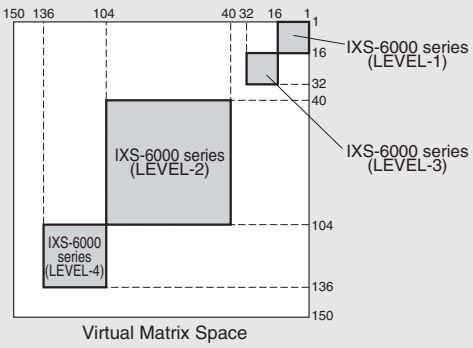
Figure-5



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.

Figure-6



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.