

# SONY®

SDI 4:2:2 Decoder Adaptor

## BKM-20D

SDI Multi Decoder Adaptor

## BKM-21D

SDI Input Expansion Adaptor

## BKM-22X

NTSC Decoder Adaptor

## BKM-24N

PAL Decoder Adaptor

## BKM-25P

PAL-M Decoder Adaptor

## BKM-26M

Tri-Standard Decoder Adaptor

## BKM-27T

Analog Input Expansion  
Adaptor

## BKM-28X



**警告**

安全のための注意事項を守らないと、人身事故になる  
ことがあります。

このインストラクションマニュアルには、事故を防ぐための重要な注意事項と製品の取り扱いかたを記しています。このマニュアルをよくお読みのうえ、製品を安全にお使いください。お読みになったあとは、いつでも見られるように必ず保管してください。

INSTALLATION MANUAL Japanese/English

1st Edition (Revised 6)

Serial No. 2100001 and Higher (BKM-21D)

Serial No. 2000001 and Higher (BKM-20D/22X/  
24N/25P/26M/27T/28X)

### **For customers in the USA**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

### **For the customers in Europe**

This product with the CE marking complies with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European standards:

- EN60950: Product Safety
- EN55103-1: Electromagnetic Interference (Emission)
- EN55103-2: Electromagnetic Susceptibility (Immunity)

This product is intended for use in the following Electromagnetic Environment(s):

E1 (residential), E2 (commercial and light industrial), E3 (urban outdoors) and E4 (controlled EMC environment, ex. TV studio).

### **Pour les clients européens**

Ce produit portant la marque CE est conforme à la fois à la Directive sur la compatibilité électromagnétique (EMC) (89/336/CEE) et à la Directive sur les basses tensions (73/23/CEE) émises par la Commission de la Communauté européenne.

La conformité à ces directives implique la conformité aux normes européennes suivantes:

- EN60950: Sécurité des produits
- EN55103-1: Interférences électromagnétiques (émission)
- EN55103-2: Sensibilité électromagnétique (immunité)

Ce produit est prévu pour être utilisé dans les environnements électromagnétiques suivants:

E1 (résidentiel), E2 (commercial et industrie légère), E3 (urbain extérieur) et E4 (environnement EMC contrôlé ex. studio de télévision).

### **Für Kunden in Europa**

Dieses Produkt besitzt die CE-Kennzeichnung und erfüllt sowohl die EMV-Direktive (89/336/EEC) als auch die Direktive Niederspannung (73/23/EEC) der EG-Kommission. Die Erfüllung dieser Direktiven bedeutet Konformität für die folgenden Europäischen Normen:

- EN60950: Produktsicherheit
- EN55103-1: Elektromagnetische Interferenz (Emission)
- EN55103-2: Elektromagnetische Empfindlichkeit (Immunität)

Dieses Produkt ist für den Einsatz unter folgenden elektromagnetischen Bedingungen ausgelegt:

E1 (Wohnbereich), E2 (kommerzieller und in beschränktem Maße industrieller Bereich), E3 (Stadtgebiet im Freien) und E4 (kontrollierter EMV-Bereich, z.B. Fernsehstudio).

<b>BKM-20D SDI 4:2:2 Decoder Adaptor .....</b>	<b>3(E)</b>
Functions .....	3(E)
Using the Input and output Connectors .....	3(E)
Specifications .....	4(E)
<b>BKM-21D SDI Multi Decoder Adaptor .....</b>	<b>5(E)</b>
Functions .....	5(E)
Using the Input and Output Connectors .....	5(E)
Specifications .....	6(E)
<b>BKM-22X SDI Input Expansion Adaptor .....</b>	<b>8(E)</b>
Functions .....	8(E)
Using the Input and Output Connectors .....	8(E)
Specifications .....	9(E)
<b>BKM-24N NTSC Decoder Adaptor .....</b>	<b>10(E)</b>
Functions .....	10(E)
Using the Input and Output Connectors .....	10(E)
Specifications .....	11(E)
<b>BKM-25P PAL Decoder Adaptor .....</b>	<b>12(E)</b>
Functions .....	12(E)
Using the Input and Output Connectors .....	12(E)
Specifications .....	13(E)
<b>BKM-26M PAL-M Decoder Adaptor .....</b>	<b>14(E)</b>
Functions .....	14(E)
Using the Input and Output Connectors .....	14(E)
Specifications .....	15(E)
<b>BKM-27T Tri-Standard Decoder Adaptor .....</b>	<b>16(E)</b>
Functions .....	16(E)
Using the Input and Output Connectors .....	16(E)
Specifications .....	17(E)
<b>BKM-28X Analog Input Expansion Adaptor .....</b>	<b>18(E)</b>
Functions .....	18(E)
Using the Input and Output Connectors .....	18(E)
Specifications .....	19(E)
<b>Combination of Multiple Adaptors .....</b>	<b>20(E)</b>
<b>Installing into Video Monitors .....</b>	<b>21(E)</b>



# BKM-20D SDI 4:2:2 Decoder Adaptor

The BKM-20D SDI 4:2:2 Decoder Adaptor is a video signal input adaptor for BVM-Series video monitors. When installed in an input option slot on the rear panel of the video monitor, it provides video input and output connectors for the monitor and a decoder for serial digital component signals.

## Functions

### Decoder for Serial Digital Component Signals

The BKM-20D is equipped with a decoder for serial digital component (525/625) signals. If decoder adaptors for analog composite signals are installed in other input option slots, you can use them to decode analog composite signals input to the BKM-20D.

### Serial Digital and Analog Input and Output Signal Connectors

The BKM-20D is equipped with three input and three output connectors for serial digital signals, as well as three input and three output connectors for analog signals. Using the analog signal input connectors, you can input one Y/R-Y/B-Y or one RGB signal, or three analog composite signals. The types of analog composite signals that may be input vary depending on the input adaptors installed in other input option slots (see page 20(E)).

## Using the Input and Output Connectors

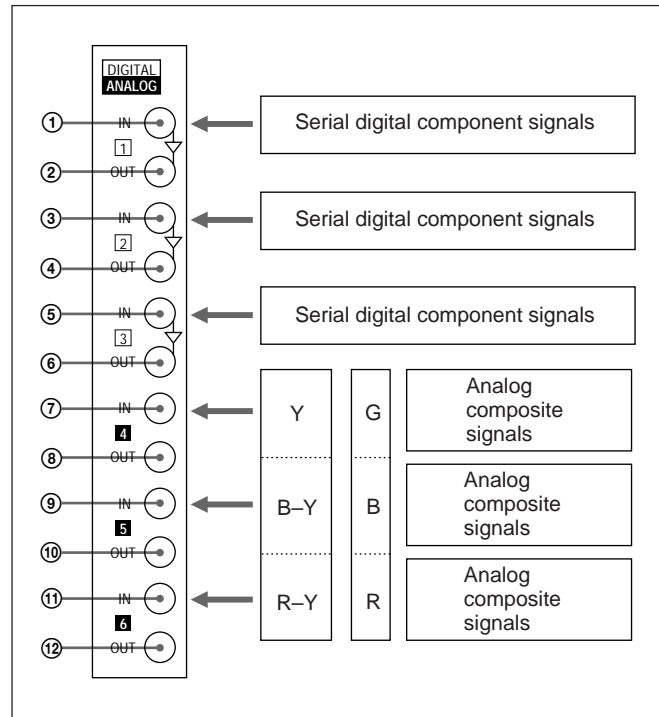
For information about installing the BKM-20D in a video monitor input option slot, see "Installing into Video Monitors" (page 21(E)).

### Note on using the BKM-20D

When installing adaptors, moving the analog input connectors board, or fitting a cover plate over an unused slot, always **fit the BKM-20D as the last step of the operation**. If a BKM-20D is already installed, remove it temporarily while carrying out the other operations, then reinstall it last (see page 22(E)).

## Configuration of Input/Output Connectors and Signals that may be Input

The configuration of the input and output connectors and the signals that may be input are shown below.



### Input of serial digital component signals

You can input serial digital signals to connectors 1, 3, and 5. You can obtain active loop-through output of those signals from connectors 2, 4, and 6, respectively.

You need not attach 75-ohm terminations to connectors 2, 4, and 6.

### Input of analog composite signals

You can input analog composite signals to connectors 7, 9, and 11. You can obtain loop-through output of those signals from connectors 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 8, 10, and 12.

### Input of Y/R-Y/B-Y or RGB signals

You can input a Y or G signal to connector 7, an B-Y or B signal to connector 9, and a R-Y or R signal to connector 11. You can obtain loop-through output of those signals from connectors 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 8, 10, and 12.

# BKM-20D SDI 4:2:2 Decoder Adaptor

## Assigning Input Signals to Connectors

Before inputting signals to the BKM-20D, you must specify the type and format of the signal that will be input to each connector. To assign input signals to each connector, use the on-screen INPUT CONFIGURATION menu of your video monitor.

*For information about using the INPUT CONFIGURATION menu, refer to the manual of your video monitor.*

## Specifications

### General

Voltage	+5 V, $\pm 6$ V (supplied from the monitor)
Power consumption	8 W
Recommended operating temperature	20°C to 30°C (68°F to 86°F)
Permissible operating temperature	0°C to 40°C (32°F to 104°F)
Operating humidity	0% to 90% (no condensation)
Maximum external dimensions (w/h/d)	25 × 256 × 245 mm ( $3^{1/32} \times 10^{1/8} \times 9^{3/4}$ inches)
Mass	768g (1 lb 11 oz)

### Input/Output Connectors

Digital input	BNC × 3, with active loop-through output
Analog input	BNC × 3, high impedance, with loop-through output

### Signal Characteristics

#### Analog composite signals

Signal level	1 Vp-p +3 dB/-6 dB
Return loss	-46 dB min. (7 MHz)

#### Analog component (Y/R-Y/B-Y, RGB) signals

Signal level	
Y/R-Y/B-Y	Y: 1 Vp-p $\pm 6$ dB R-Y: 0.7 Vp-p $\pm 6$ dB B-Y: 0.7 Vp-p $\pm 6$ dB
R/G/B	1 Vp-p $\pm 6$ dB (sync on G)
Frequency characteristics	
Y	100 Hz to 10 MHz $\pm 1$ dB
R-Y/B-Y	100 Hz to 6 MHz $\pm 1$ dB
R/G/B	100 Hz to 10 MHz $\pm 1$ dB
Chrominance signal/luminance signal	
Delay time error	30 nsec max.
Gain error	5% max.
Aperture compensation (Y/R-Y/B-Y)	6 dB min. (5 MHz)
Return loss	-46 dB min. (7 MHz)

#### Digital component (525, 625) signals

Sampling frequency	Y: 13.5 MHz R-Y/B-Y: 6.75 MHz
Frequency characteristics	Y: 100 Hz to 5.75 MHz $\pm 1$ dB R-Y/B-Y: 100 Hz to 2.75 MHz $\pm 1$ dB
Chrominance/luminance signals	
Delay time error	30 nsec max.
Gain error	5% max.
K factor	1% max. (2T pulse)
Aperture compensation	6 dB min. (5 MHz)
Quantization	10 bits/sample
Transmission distance	200 m (approx. 656 ft) max. (When using 5C-2V coaxial cables (Fujikura, Inc.) or equivalent.)
Return loss	5 MHz to 270 MHz -15 dB min.

### Accessories Supplied

Installation Manual (1)

Design and specifications are subject to change without notice.

# BKM-21D SDI Multi Decoder Adaptor

The BKM-21D SDI Multi Decoder Adaptor is a video signal input adaptor for BVM-Series video monitors. When installed in an input option slot on the rear panel of the video monitor, it provides video input and output connectors for the monitor and a decoder for serial digital signals and analog composite (NTSC/PAL) signals.

## Notes

- Before installing this adaptor, check the adaptor serial number and the software version of your video monitor. If the adaptor serial number is 2100001 or higher, and the software version is lower than the version indicated for your monitor in the following table, then you need to upgrade the software before installing the adaptor. You can check the software version of your video monitor on the STATUS MENU.

Monitor model name	Software version
BVM-20E1/14E1/14E5	1.40 or higher
BVM-20F1/14F1/14F5	
BVM-20G1/14G1/14G5	1.10 or higher
BVM-D32E1W	1.20 or higher
BVM-D24E1W	
BVM-D20F1	

- When installing or moving adaptors, or fitting a cover plate over an unused slot, always **fit the BKM-21D as the last step of the operation**. If a BKM-21D is already installed, remove it temporarily while carrying out the other operations, then reinstall it last (see page 22(E)).

## Functions

### Decoders for Serial Digital Signals and Analog Composite Signals

The BKM-21D is equipped with a decoder for serial digital signals (525/625 component and NTSC/PAL composite), and with a decoder for analog composite NTSC and PAL signals.

## Serial Digital and Analog Input and Output Signal Connectors

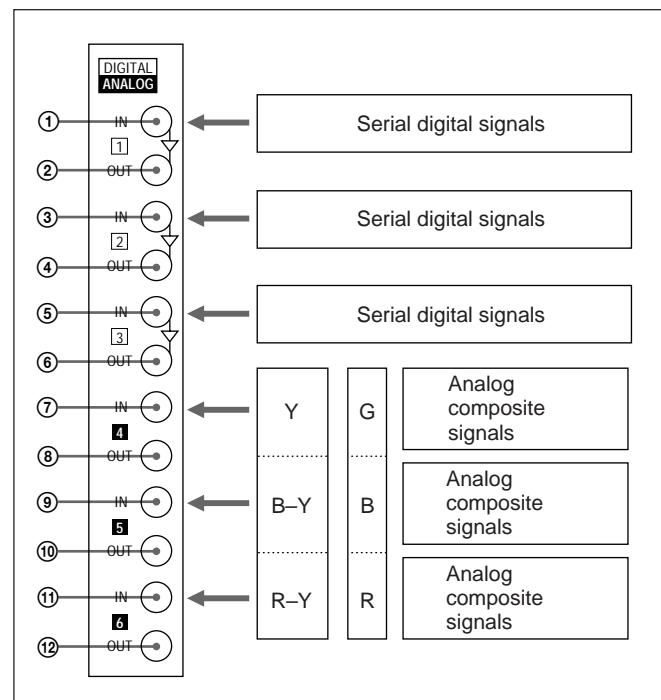
The BKM-21D is equipped with three input and three output connectors for serial digital signals, as well as three input and three output connectors for analog signals. Using the analog signal input connectors, you can input one Y/R–Y/B–Y or one RGB signal, or three analog composite signals. The types of analog composite signals that may be input vary depending on the input adaptors installed in other input option slots (see page 20(E)).

## Using the Input and Output Connectors

For information about installing the BKM-21D in a video monitor input option slot, see “Installing into Video Monitors” (page 21(E)).

## Configuration of Input/Output Connectors and Signals that may be Input

The configuration of the input and output connectors and the signals that may be input are shown below.



# BKM-21D SDI Multi Decoder Adaptor

## Input of serial digital signals

You can input serial digital signals to connectors 1, 3, and 5. You can obtain active loop-through output of those signals from connectors 2, 4, and 6, respectively.

You need not attach 75-ohm terminations to connectors 2, 4, and 6.

## Input of analog composite signals

You can input analog composite signals to connectors 7, 9, and !j. You can obtain loop-through output of those signals from connectors 8, O, and !™, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 8, O, and !™.

## Input of Y/R–Y/B–Y or RGB signals

You can input a Y or G signal to connector 7, an B–Y or B signal to connector 9, and a R–Y or R signal to connector !j. You can obtain loop-through output of those signals from connectors 8, O, and !™, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 8, O, and !™.

## Assigning Input Signals to Connectors

Before inputting signals to the BKM-21D, you must specify the type and format of the signal that will be input to each connector. To assign input signals to each connector, use the on-screen INPUT CONFIGURATION menu of your video monitor.

*For information about using the INPUT CONFIGURATION menu, refer to the manual of your video monitor.*

## Specifications

### General

Power requirements +5 V, ±6 V, –15 V (supplied from the monitor)

Power consumption 11 W

Recommended operating temperature 20°C to 30°C (68°F to 86°F)

Permissible operating temperature 0°C to 40°C (32°F to 104°F)

Operating humidity 0% to 90% (no condensation)

Maximum external dimensions (w/h/d)

25 × 256 × 245 mm

(<sup>31</sup>/<sub>32</sub> × 10<sup>1</sup>/<sub>8</sub> × 9<sup>3</sup>/<sub>4</sub> inches)

Mass 770g (1 lb 11oz)

## Input/Output Connectors

Digital input BNC × 3, with active loop-through output

Analog input BNC × 3, high impedance, with loop-through output

## Signal Characteristics

### Analog composite signals

Signal level 1 Vp-p +3 dB/–6 dB

Luminance signal

Frequency characteristics

Filter off: 100 Hz to 5 MHz ±1 dB (monochrome signal)

Filter on: –30 dB relative to subcarrier frequency

Chrominance signals

Demodulation axis

NTSC, PAL: R–Y/B–Y

Chrominance signal band (R–Y, B–Y)

NTSC

COMB filter:

0.9 MHz–3dB

TRAP/BPF filter:

0.7 MHz–3dB

PAL

COMB filter:

1.1 MHz–3dB

TRAP/BPF filter:

0.9 MHz–3dB

Subcarrier reproduction error

±1% max.

Subcarrier synchronization range

±150 Hz min.

Chroma phase adjustment range

NTSC: ±15° min.

PAL: ±10° min.

DG (differential gain) APL 10% to 90% 2% max.

DP (differential phase) APL 10% to 90% 2° max.

Chrominance signal/luminance signal

Delay error 35 nsec max.

Gain error 5% max.



Aperture compensation 6 dB min. (5 MHz)  
 Return loss -46 dB min. (7 MHz)

**Analog component (Y/R-Y/B-Y, RGB) signals**

Signal level  
 Y/R-Y/B-Y Y: 1 V<sub>p-p</sub> ±6 dB  
 R-Y: 0.7 V<sub>p-p</sub> ±6 dB  
 B-Y: 0.7 V<sub>p-p</sub> ±6 dB  
 R/G/B 1 V<sub>p-p</sub> ±6 dB (sync on G)  
 Frequency characteristics  
 Y 100 Hz to 10 MHz ±1 dB  
 R-Y/B-Y 100 Hz to 6 MHz ±1 dB  
 R/G/B 100 Hz to 10 MHz ±1 dB

Chrominance signal/luminance signal

Delay time error 30 nsec max.  
 Gain error 5% max.  
 Aperture compensation (Y/R-Y/B-Y) 6 dB min. (5 MHz)  
 Return loss -46 dB min. (7MHz)

**Digital component (525, 625) and composite (NTSC, PAL) signals**

Component  
 Sampling frequency  
 Y: 13.5 MHz  
 R-Y/B-Y: 6.75 MHz  
 Frequency characteristics  
 Y: 100 Hz to 5.75 MHz ±1 dB  
 R-Y/B-Y: 100 Hz to 2.75 MHz ±1 dB  
 K factor 1% max. (2T pulse)  
 Composite  
 Sampling frequency  
 NTSC: 14.3 MHz  
 PAL: 17.7 MHz  
 Frequency bandwidth  
 Y: 100 Hz to 5 MHz ±1 dB  
 R-Y/B-Y:  
 NTSC  
 COMB filter:  
 0.9 MHz-3dB  
 TRAP/BPF filter:  
 0.7 MHz-3dB  
 PAL  
 COMB filter:  
 1.1 MHz-3dB  
 TRAP/BPF filter:  
 0.9 MHz-3dB

Chrominance/luminance signals  
 Delay time error: 35 nsec max.  
 Gain error: 5% max.  
 K factor 1% max. (2T pulse)  
 Aperture compensation 6 dB min. (5 MHz)  
 Quantization 10 bits/sample  
 Transmission distance 200 m (approx. 656 ft) max.  
 (When using 5C-2V coaxial cables (Fujikura, Inc.) or equivalent.)  
 Return loss 5 MHz to 270 MHz -15 dB min.

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**Accessories Supplied**

Installation Manual (1)

Design and specifications are subject to change without notice.

# BKM-22X SDI Input Expansion Adaptor

The BKM-22X SDI Input Expansion Adaptor is a video signal input adaptor for BVM-Series video monitors.

When installed in an input option slot on the rear panel of the video monitor, it provides video input and output connectors for the monitor.

## Functions

### Expansion of Serial Digital Inputs

The BKM-22X is not equipped with decoders, but if decoder adaptors are installed in other input option slots, you can use them to decode serial digital signals input to the BKM-22X.

Expansion of analog composite or analog component inputs is also possible.

### Serial Digital and Analog Input and Output Signal Connectors

The BKM-22X is equipped with three input and three output connectors for serial digital signals, as well as three input and three output connectors for analog signals.

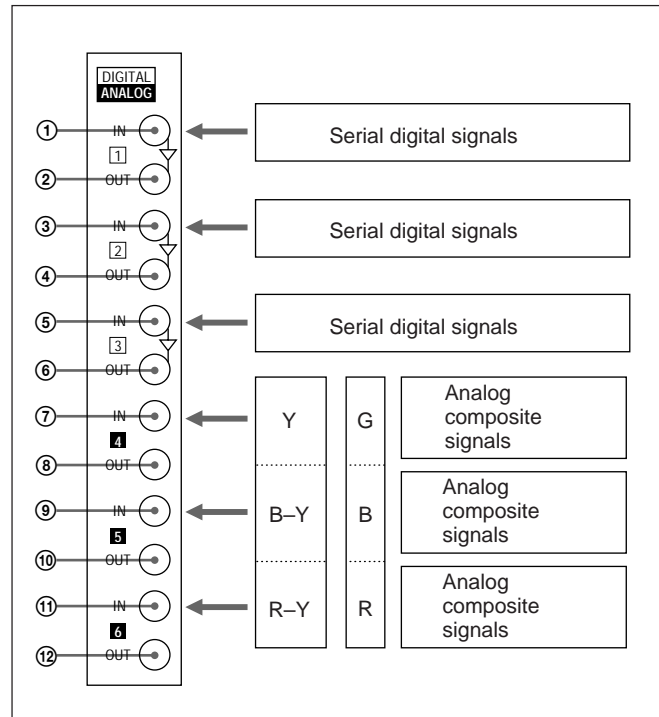
Using the analog signal input connectors, you can input one Y/R–Y/B–Y or one RGB signal, or three analog composite signals. The types of analog composite signals that may be input vary depending on the input adaptors installed in other input option slots (see page 20(E)).

## Using the Input and Output Connectors

For information about installing the BKM-22X in a video monitor input option slot, see “Installing into Video Monitors” (page 21(E)).

## Configuration of Input/Output Connectors and Signals that may be Input

The configuration of the input and output connectors and the signals that may be input are shown below.



### Input of serial digital signals

You can input serial digital signals to connectors 1, 3, and 5. You can obtain active loop-through output of those signals from connectors 2, 4, and 6, respectively.

You need not attach 75-ohm terminations to connectors 2, 4, and 6.

### Input of analog composite signals

You can input analog composite signals to connectors 7, 9, and 11. You can obtain loop-through output of those signals from connectors 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 8, 10, and 12.

### Input of Y/R–Y/B–Y or RGB signals

You can input a Y or G signal to connector 7, an B–Y or B signal to connector 9, and a R–Y or R signal to connector 11. You can obtain loop-through output of those signals from connectors 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 8, 10, and 12.

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## Assigning Input Signals to Connectors

Before inputting signals to the BKM-22X, you must specify the type and format of the signal that will be input to each connector. To assign input signals to each connector, use the on-screen INPUT CONFIGURATION menu of your video monitor.

*For information about using the INPUT CONFIGURATION menu, refer to the manual of your video monitor.*

## Specifications

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### General

Power requirements	+5 V, ±6 V (supplied from the monitor)
Power consumption	6 W
Recommended operating temperature	20°C to 30°C (68°F to 86°F)
Permissible operating temperature	0°C to 40°C (32°F to 104°F)
Operating humidity	0% to 90% (no condensation)
Maximum external dimensions (w/h/d)	25 × 256 × 245 mm ( <sup>31</sup> / <sub>32</sub> × 10 <sup>1</sup> / <sub>8</sub> × 9 <sup>3</sup> / <sub>4</sub> inches)
Mass	615g (1 lb 5 oz)

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### Input/Output Connectors

Digital input	BNC × 3, with active loop-through output
Analog input	BNC × 3, high impedance, with loop-through output

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### Signal Characteristics

#### Analog composite signals

Signal level	1 Vp-p +3 dB/-6 dB
Return loss	-46 dB min. (7 MHz)

#### Analog component (Y/R-Y/B-Y, RGB) signals

Signal level	
Y/R-Y/B-Y	Y: 1 Vp-p ±6 dB R-Y: 0.7 Vp-p ±6 dB B-Y: 0.7 Vp-p ±6 dB
R/G/B	1 Vp-p ±6 dB (sync on G)
Frequency characteristics	
Y	100 Hz to 10 MHz ±1dB
R-Y/B-Y	100 Hz to 6 MHz ±1dB
R/G/B	100 Hz to 10 MHz ±1dB
Chrominance signal/luminance signal	
Delay time error	30 nsec max.
Gain error	5% max.
Aperture compensation (Y/R-Y/B-Y)	6 dB min. (5 MHz)
Return loss	-46 dB min. (7 MHz)

#### Digital component (525, 625) and composite (NTSC, PAL) signals

Component	
Sampling frequency	Y: 13.5 MHz R-Y/B-Y: 6.75 MHz
Composite	
Sampling frequency	NTSC: 14.3 MHz PAL: 17.7 MHz
Quantization	10 bits/sample
Transmission distance	200 m (approx. 656 ft) max. (When using 5C-2V coaxial cables (Fujikura, Inc.) or equivalent.)
Return loss	5 MHz to 270 MHz -15 dB min.

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### Accessories Supplied

Installation Manual (1)

Design and specifications are subject to change without notice.

# BKM-24N NTSC Decoder Adaptor

The BKM-24N NTSC Decoder Adaptor is a video signal input adaptor for BVM-Series video monitors. When installed in an input option slot on the rear panel of the video monitor, it provides video input and output connectors for the monitor and a decoder for analog composite NTSC signals.

## Functions

### Decoder for Analog Composite NTSC Signals

The BKM-24N is equipped with a decoder for analog composite NTSC signals.

### Analog Input and Output Signal Connectors

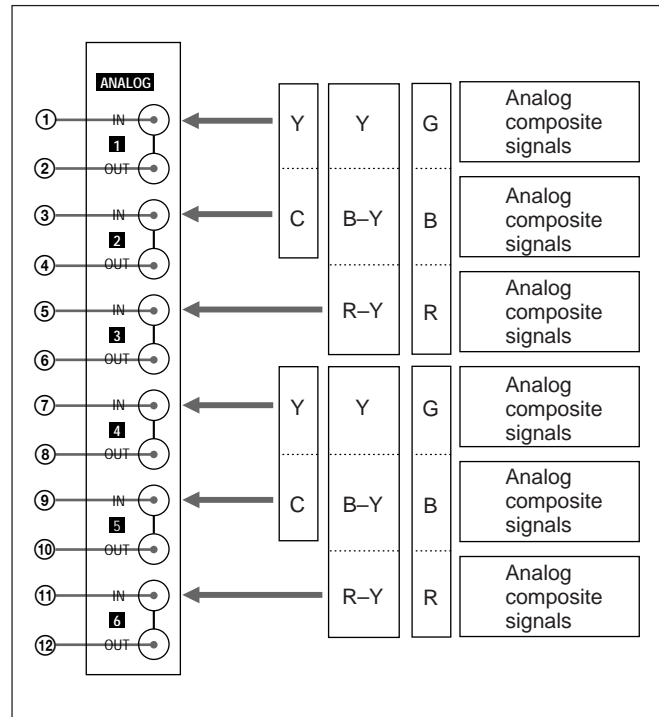
The BKM-24N is equipped with six input and six output connectors. You can input two Y/R-Y/B-Y, RGB or YC signals, or six analog composite signals to the input connectors. The types of analog composite signals that may be input vary depending on the input adaptors installed in other input option slots (*see page 20(E)*).

## Using the Input and Output Connectors

For information about installing the BKM-24N in a video monitor input option slot, see "Installing into Video Monitors" (*page 21(E)*).

## Configuration of Input/Output Connectors and Signals that may be Input

The configuration of the input and output connectors and the signals that may be input are shown below.



### Input of analog composite signals

You can input analog composite signals to connectors 1, 3, 5, 7, 9, and 11. You can obtain loop-through output of those signals from connectors 2, 4, 6, 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 2, 4, 6, 8, 10, and 12.

### Input of Y/R-Y/B-Y, RGB, or YC signals

When inputting Y/R-Y/B-Y or RGB signals, you can input Y or G signals to connectors 1 and 7, B-Y or B signals to connectors 3 and 9, and R-Y or R signals to connectors 5 and 11.

When inputting YC signals, you can input Y signals to connectors 1 and 7, and C signals to connectors 3 and 9. (Connectors 5 and 11 are not used).

You can obtain loop-through output of the above signals from connectors 2, 4, 6, 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 2, 4, 6, 8, 10, and 12.

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## Assigning Input Signals to Connectors

Before inputting signals to the BKM-24N, you must specify the type and format of the signal that will be input to each connector. To assign input signals to each connector, use the on-screen INPUT CONFIGURATION menu of your video monitor.

*For information about using the INPUT CONFIGURATION menu, refer to the manual of your video monitor.*

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## Specifications

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### General

Power requirements	+5 V, ±6 V, ±15 V (supplied from the monitor)
Power consumption	10 W
Recommended operating temperature	20°C to 30°C (68°F to 86°F)
Permissible operating temperature	0°C to 40°C (32°F to 104°F)
Operating humidity	0% to 90% (no condensation)
Maximum external dimensions (w/h/d)	25 × 256 × 245 mm ( <sup>31</sup> / <sub>32</sub> × 10 <sup>1</sup> / <sub>8</sub> × 9 <sup>3</sup> / <sub>4</sub> inches)
Mass	660g (1 lb 11oz)

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### Input/Output Connectors

BNC × 6, high impedance, with loop-through output

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### Signal Characteristics

#### Analog composite, YC (NTSC) signals

Signal level

Analog composite

1 Vp-p +3 dB/-6 dB

YC

Y: 1 Vp-p ±6 dB

C: 0.286 Vp-p ±6 dB (burst signal level)

Luminance signal

Frequency characteristics

Analog composite

Filter off: 100 MHz to 8 MHz  
±1 dB (monochrome signal)

Filter on: -30 dB relative to subcarrier frequency

YC	Y: 100 Hz to 8 MHz ±1 dB
Chrominance signals	
Demodulation axis	I/Q
Chrominance signal band	I: 1.3 MHz -3 dB Q: 0.5 MHz -3 dB
Subcarrier reproduction error	±1% max.
Subcarrier synchronization range	±200 Hz min.
Chroma phase adjustment range	±15° min.
DG (differential gain) APL 10% to 90%	2% max.
DP (differential phase) APL 10% to 90%	2° max.
Chrominance signal/luminance signal	
Delay time error	35 nsec max.
Gain error	5% max.
Aperture compensation	6 dB min. (5 MHz)
Return loss	-46 dB min. (7 MHz)

#### Analog component (Y/R-Y/B-Y, RGB) signals

Signal level

Y/R-Y/B-Y Y: 1 Vp-p ±6 dB

R-Y: 0.7 Vp-p ±6 dB

B-Y: 0.7 Vp-p ±6 dB

R/G/B 1 Vp-p ±6 dB (sync on G)

Frequency characteristics

Y 100 Hz to 10 MHz ±1dB

R-Y/B-Y 100 Hz to 6 MHz ±1dB

R/G/B 100 Hz to 10 MHz ±1dB

Chrominance signals/luminance signal

Delay time error

30 nsec max.

Gain error 5% max.

Aperture compensation(Y/R-Y/B-Y)

6 dB min. (5 MHz)

Return loss

-46 dB min. (7 MHz)

---

### Accessories Supplied

Installation Manual (1)

Design and specifications are subject to change without notice.

# BKM-25P PAL Decoder Adaptor

The BKM-25P PAL Decoder Adaptor is a video signal input adaptor for BVM-Series video monitors. When installed in an input option slot on the rear panel of the video monitor, it provides video input and output connectors for the monitor and a decoder for analog composite PAL signals.

## Functions

### Decoder for Analog Composite PAL Signals

The BKM-25P is equipped with a decoder for analog composite PAL signals.

### Analog Input and Output Signal Connectors

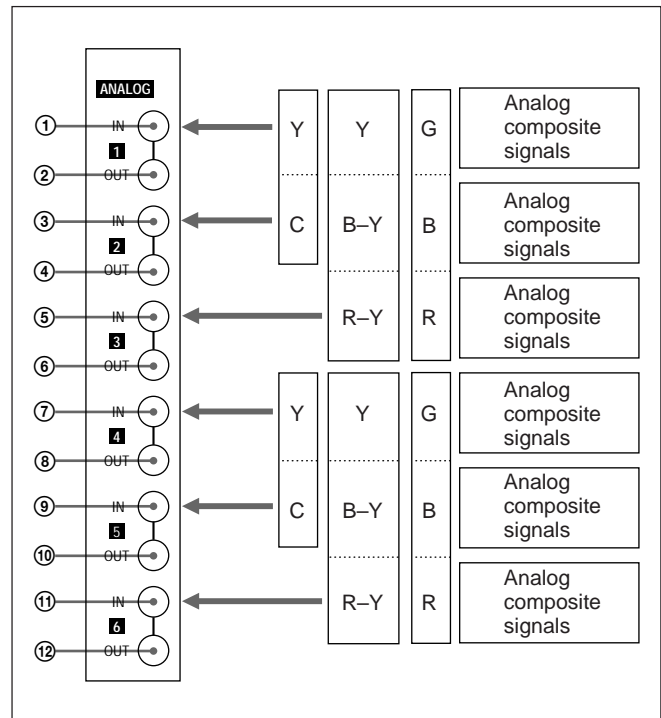
The BKM-25P is equipped with six input and six output connectors. You can input two Y/R-Y/B-Y, RGB or YC signals, or six analog composite signals to the input connectors. The types of analog composite signals that may be input vary depending on the input adaptors installed in other input option slots (*see page 20(E)*).

## Using the Input and Output Connectors

For information about installing the BKM-25P in a video monitor input option slot, see "Installing into Video Monitors" (page 21(E)).

## Configuration of Input/Output Connectors and Signals that may be Input

The configuration of the input and output connectors and the signals that may be input are shown below.



### Input of analog composite signals

You can input analog composite signals to connectors 1, 3, 5, 7, 9, and 11. You can obtain loop-through output of those signals from connectors 2, 4, 6, 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 2, 4, 6, 8, 10, and 12.

### Input of Y/R-Y/B-Y, RGB, or YC signals

When inputting Y/R-Y/B-Y or RGB signals, you can input Y or G signals to connectors 1 and 7, B-Y or B signals to connectors 3 and 9, and R-Y or R signals to connectors 5 and 11.

When inputting YC signals, you can input Y signals to connectors 1 and 7, and C signals to connectors 3 and 9. (Connectors 5 and 11 are not used).

You can obtain loop-through output of the above signals from connectors 2, 4, 6, 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 2, 4, 6, 8, 10, and 12.

---

## Assigning Input Signals to Connectors

Before inputting signals to the BKM-25P, you must specify the type and format of the signal that will be input to each connector. To assign input signals to each connector, use the on-screen INPUT CONFIGURATION menu of your video monitor.

*For information about using the INPUT CONFIGURATION menu, refer to the manual of your video monitor.*

---

## Specifications

---

### General

Power requirements	+5 V, ±6 V, ±12 V (supplied from the monitor)
Power consumption	12 W
Recommended operating temperature	20°C to 30°C (68°F to 86°F)
Permissible operating temperature	0°C to 40°C (32°F to 104°F)
Operating humidity	0% to 90% (no condensation)
Maximum external dimensions (w/h/d)	25 × 256 × 245 mm ( <sup>31</sup> / <sub>32</sub> × 10 <sup>1</sup> / <sub>8</sub> × 9 <sup>3</sup> / <sub>4</sub> inches)
Mass	680g (1 lb 7 oz)

---

### Input/Output Connectors

BNC × 6, high impedance, with loop-through output

---

### Signal Characteristics

#### Analog composite, YC (PAL) signals

Signal level

Analog composite

1 Vp-p +3 dB/-6 dB

YC

Y: 1 Vp-p +6 dB

C: 0.3 Vp-p +6 dB (burst signal level)

Luminance signal

Frequency characteristics

Analog composite

Filter off: 100 MHz to 8 MHz  
±1 dB (monochrome signal)

Filter on: -30 dB relative to subcarrier frequency

YC Y: 100 Hz to 8 MHz ±1 dB  
Chrominance signals

Demodulation axis

R-Y/B-Y

Chrominance signal band

R-Y: 1.3 MHz -3 dB

B-Y: 1.3 MHz -3 dB

Subcarrier reproduction error

±1% max.

Subcarrier synchronization range

±200 Hz min.

Chroma phase adjustment range

±10° min.

DG (differential gain) APL 10% to 90%

2% max.

DP (differential phase) APL 10% to 90%

2° max.

Chrominance signals/luminance signal

Delay time error

35 nsec max.

Gain error

5% max.

Aperture compensation

6 dB min. (5 MHz)

Return loss

-46 dB min. (7 MHz)

#### Analog component (Y/R-Y/B-Y, RGB) signals

Signal level

Y/R-Y/B-Y Y: 1 Vp-p ±6 dB

R-Y: 0.7 Vp-p ±6 dB

B-Y: 0.7 Vp-p ±6 dB

R/G/B

1 Vp-p ±6 dB (sync on G)

Frequency characteristics

Y 100 Hz to 10 MHz ±1dB

R-Y/B-Y 100 Hz to 6 MHz ±1dB

R/G/B 100 Hz to 10 MHz ±1dB

Chrominance signal/luminance signal

Delay time error

30 nsec max.

Gain error

5% max.

Aperture compensation (Y/R-Y/B-Y)

6 dB min. (5 MHz)

Return loss

-46 dB min. (7 MHz)

---

### Accessories Supplied

Installation Manual (1)

Design and specifications are subject to change without notice.

# BKM-26M PAL-M Decoder Adaptor

The BKM-26M PAL-M Decoder Adaptor is a video signal input adaptor for BVM-Series video monitors. When installed in an input option slot on the rear panel of the video monitor, it provides video input and output connectors for the monitor and a decoder for analog composite PAL-M signals.

## Functions

### Decoding Analog Composite PAL-M Signals

The BKM-26M is equipped with a decoder for analog composite PAL-M signals.

### Analog Input and Output Signal Connectors

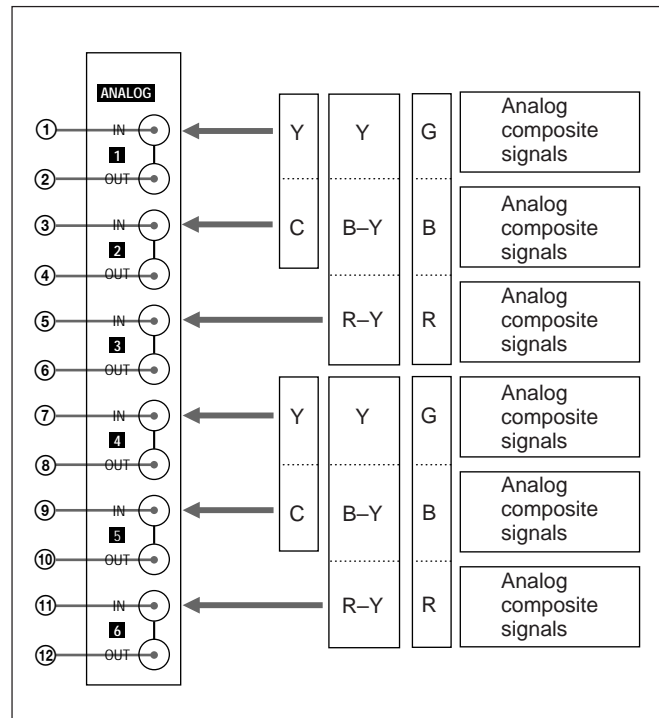
The BKM-26M is equipped with six input and six output connectors. You can input two Y/R-Y/B-Y, RGB or YC signals, or six analog composite signals to the input connectors. The types of analog composite signals that may be input vary depending on the input adaptors installed in other input option slots (*see page 20(E)*).

## Using the Input and Output Connectors

For information about installing the BKM-26M in a video monitor input option slot, see "Installing into Video Monitors" (*page 21(E)*).

### Configuration of Input/Output Connectors and Signals that may be Input

The configuration of the input and output connectors and the signals that may be input are shown below.



### Input of analog composite signals

You can input analog composite signals to connectors 1, 3, 5, 7, 9, and 11. You can obtain loop-through output of those signals from connectors 2, 4, 6, 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 2, 4, 6, 8, 10, and 12.

### Input of Y/R-Y/B-Y, RGB, or YC signals

When inputting Y/R-Y/B-Y or RGB signals, you can input Y or G signals to connectors 1 and 7, B-Y or B signals to connectors 3 and 9, and R-Y or R signals to connectors 5 and 11.

When inputting YC signals, you can input Y signals to connectors 1 and 7, and C signals to connectors 3 and 9. (Connectors 5 and 11 are not used).

You can obtain loop-through output of the above signals from connectors 2, 4, 6, 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 2, 4, 6, 8, 10, and 12.



---

## Assigning Input Signals to Connectors

Before inputting signals to the BKM-26M, you must specify the type and format of the signal that will be input to each connector. To assign input signals to each connector, use the on-screen INPUT CONFIGURATION menu of your video monitor.

*For information about using the INPUT CONFIGURATION menu, refer to the manual of your video monitor.*

---

## Specifications

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### General

Power requirements	+5 V, ±6 V, ±15 V (supplied from the monitor)
Power consumption	12 W
Recommended operating temperature	20°C to 30°C (68°F to 86°F)
Permissible operating temperature	0°C to 40°C (32°F to 104°F)
Operating humidity	0% to 90% (no condensation)
Maximum external dimensions (w/h/d)	25 × 256 × 245 mm ( <sup>31</sup> / <sub>32</sub> × 10 <sup>1</sup> / <sub>8</sub> × 9 <sup>3</sup> / <sub>4</sub> inches)
Mass	680g (1 lb 7 oz)

---

### Input/Output Connectors

BNC × 6, high impedance, with active loop-through output

---

### Signal Characteristics

#### Analog composite, YC (PAL-M) signals

Signal level	
Analog composite	1 Vp-p +3 dB/-6 dB
YC	Y: 1 Vp-p ±6 dB C: 0.3 Vp-p -6 dB (burst signal level)

#### Luminance signal

Frequency characteristics	
Analog composite	Filter off: 100 MHz to 8 MH ± 1 dB (monochrome signal)

YC	Filter on: -30 dB relative to subcarrier frequency Y: 100 Hz to 8 MH ±1 dB
Chrominance signals	
Demodulation axis	R-Y/B-Y
Chrominance signal band	R-Y: 1.3 MHz -3 dB B-Y: 1.3 MHz -3 dB
Subcarrier reproduction error	±1% max.
Subcarrier synchronization range	±200 Hz min.
Chroma phase adjustment range	±10° min.
DG (differential gain) APL 10% to 90%	2% max.
DP (differential phase) APL 10% to 90%	2° max.
Chrominance signal/luminance signal	
Delay time error	35 nsec max.
Gain error	5% max.
Aperture compensation	6 dB min. (5 MHz)
Return loss	-46 dB min. (7 MHz)

#### Analog component (Y/R-Y/B-Y, RGB) signals

Signal level	
Y/R-Y/B-Y	Y: 1 Vp-p ±6 dB R-Y: 0.7 Vp-p ±6 dB B-Y: 0.7 Vp-p ±6 dB
R/G/B	1 Vp-p ±6 dB (sync on G)

#### Frequency characteristics

Y	100 Hz to 10 MHz ±1dB
R-Y/B-Y	100 Hz to 6 MHz ±1dB
R/G/B	100 Hz to 10 MHz ±1dB

#### Chrominance signals/luminance signal

Delay time error	30 nsec max.
Gain error	5% max.
Aperture compensation (Y/R-Y/B-Y only)	6 dB min. (5 MHz)
Return loss	-46 dB min. (7 MHz)

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### Accessories Supplied

Installation Manual (1)

Design and specifications are subject to change without notice.

# BKM-27T Tri-Standard Decoder Adaptor

The BKM-27T Tri-Standard Decoder Adaptor is a video signal input adaptor for BVM-Series video monitors. When installed in an input option slot on the rear panel of the video monitor, it provides video input and output connectors for the monitor and a decoder for analog composite NTSC, PAL, and SECAM signals.

## Functions

### Decoder for Analog Composite NTSC/PAL/SECAM Signals

The BKM-27T is equipped with decoders for analog composite NTSC, PAL, and SECAM signals.

### Analog Input and Output Signal Connectors

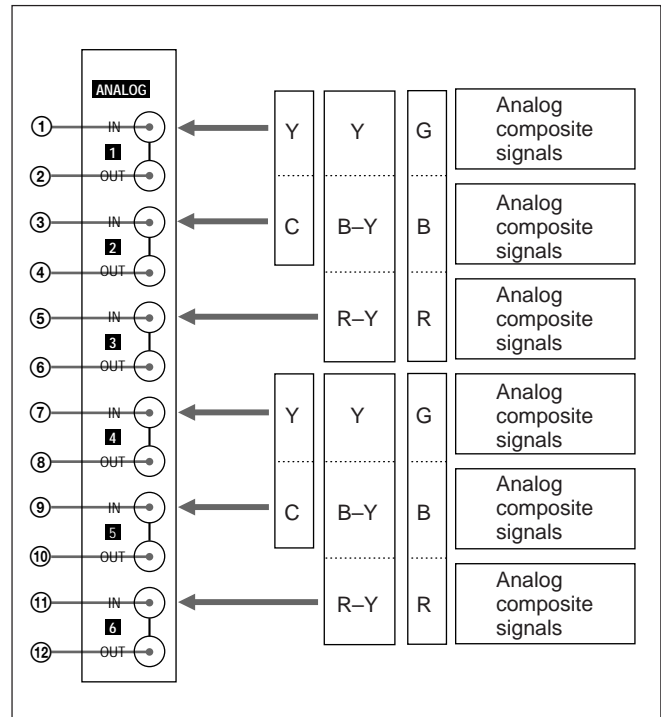
The BKM-27T is equipped with six input and six output connectors. You can input two Y/R-Y/B-Y, RGB or YC signals, or six analog composite signals to the input connectors. The types of analog composite signals that may be input vary depending on the input adaptors installed in other input option slots (*see page 20(E)*).

## Using the Input and Output Connectors

For information about installing the BKM-27T in a video monitor input option slot, see "Installing into Video Monitors" (*page 21(E)*).

## Configuration of Input/Output Connectors and Signals that may be Input

The configuration of the input and output connectors and the signals that may be input are shown below.



### Input of analog composite signals

You can input analog composite signals to connectors 1, 3, 5, 7, 9, and 11. You can obtain loop-through output of those signals from connectors 2, 4, 6, 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 2, 4, 6, 8, 10, and 12.

### Input of Y/R-Y/B-Y, RGB, or YC signals

When inputting Y/R-Y/B-Y or RGB signals, you can input Y or G signals to connectors 1 and 7, B-Y or B signals to connectors 3 and 9, and R-Y or R signals to connectors 5 and 11.

When inputting YC signals, you can input Y signals to connectors 1 and 7, and C signals to connectors 3 and 9. (Connectors 5 and 11 are not used).

You can obtain loop-through output of the above signals from connectors 2, 4, 6, 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 2, 4, 6, 8, 10, and 12.

---

## Assigning input signals to connectors

Before inputting signals to the BKM-27T, you must specify the type and format of the signal that will be input to each connector. To assign input signals to each connector, use the on-screen INPUT CONFIGURATION menu of your video monitor.

*For information about using the INPUT CONFIGURATION menu, refer to the manual of your video monitor.*

---

## Specifications

---

### General

Power requirements	+5 V, ±6 V, +15 V (supplied from the monitor)
Power consumption	4 W
Recommended operating temperature	20°C to 30°C (68°F to 86°F)
Permissible operating temperature	0°C to 40°C (32°F to 104°F)
Operating humidity	0% to 90% (no condensation)
Maximum external dimensions	25 × 256 × 245 mm ( <sup>31</sup> / <sub>32</sub> × 10 <sup>1</sup> / <sub>8</sub> × 9 <sup>3</sup> / <sub>4</sub> inches)
Mass	580g (1 lb 11 oz)

---

### Input/Output Connectors

BNC × 6, high impedance, with loop-through output

---

### Signal Characteristics

#### Analog composite, YC signals

Signal level

Analog composite

1 Vp-p +3 dB/-6 dB

YC

Y: 1 Vp-p ±6 dB

C: 0.286 Vp-p ±6 dB (NTSC burst signal level)  
0.3 Vp-p ±6 dB (PAL burst signal level)

Luminance signal

Frequency characteristics

Analog composite

Filter off: 100 MHz to 6 MHz ± 2 dB (monochrome signal)

Filter on: -30 dB relative to subcarrier frequency

YC Y: 100 Hz to 6 MHz ±2 dB

Chrominance signals

Demodulation axis

R-Y/B-Y

Subcarrier synchronization range  
±200 Hz min.

Chroma phase adjustment range  
±10° min.

DG (differential gain) APL 10% to 90%  
5% max.

DP (differential phase) APL 10% to 90%  
5° max.

Chrominance signal/luminance signal

Delay time error

100 nsec max.

Gain error 5% max.

Aperture compensation

Off: 0 dB

On: 2 to 6 dB (5 MHz)

Return loss

-46 dB min. (6 MHz)

#### Analog component (Y/R-Y/B-Y, RGB) signals

Signal level

Y/R-Y/B-Y Y: 1 Vp-p ±6 dB

R-Y: 0.7 Vp-p ±6 dB

B-Y: 0.7 Vp-p ±6 dB

R/G/B 1 Vp-p ±6 dB (sync on G)

Frequency characteristics

Y 100 Hz to 6 MHz ±2dB

R-Y/B-Y 100 Hz to 6 MHz ±1dB

R/G/B 100 Hz to 6 MHz ±1dB

Chrominance signals/luminance signal

Delay time error

50 nsec

Gain error 5% max.

Aperture compensation (Y/R-Y/B-Y)

Off: 0 dB

On: 2 to 6 dB (5 MHz)

Return loss

-46 dB min. (6MHz)

---

### Accessories Supplied

Installation Manual (1)

Design and specifications are subject to change without notice.

# BKM-28X Analog Input Expansion Adaptor

The BKM-28X Analog Input Expansion Adaptor is a video signal input adaptor for BVM-Series video monitors.

When installed in an input option slot on the rear panel of the video monitor, it provides video input and output connectors for the monitor.

## Functions

### Expansion of Analog Composite Inputs

The BKM-28X is not equipped with decoders, but if decoder adaptors are installed in other input option slots, you can use them to decode analog composite signals input to the BKM-28X.

Expansion of analog component inputs is also possible.

### Analog Input and Output Signal Connectors

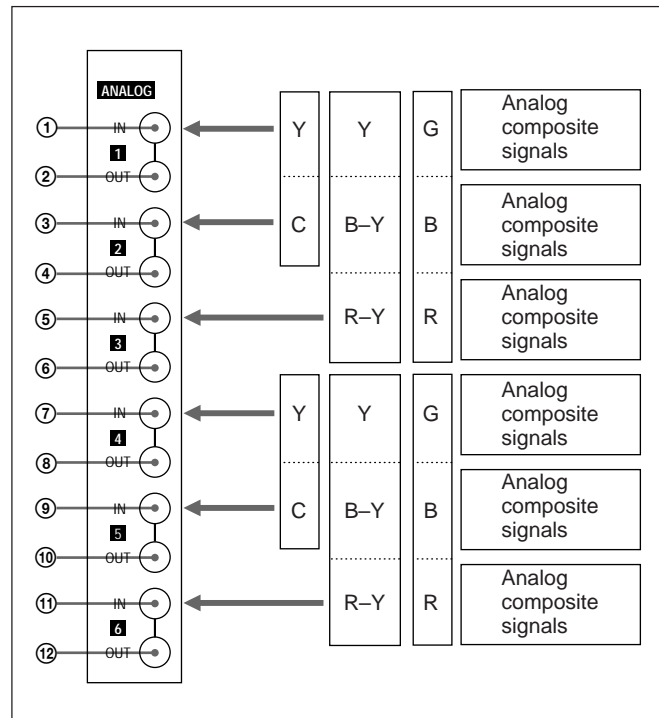
The BKM-28X is equipped with six input and six output connectors. You can input two Y/R-Y/B-Y, RGB or YC signals, or six analog composite signals to the input connectors. The types of analog composite signals that may be input vary depending on the input adaptors installed in other input option slots (*see page 20(E)*).

## Using the Input and Output Connectors

For information about installing the BKM-28X in a video monitor input option slot, see "Installing into Video Monitors" (*page 21(E)*).

## Configuration of Input/Output Connectors and Signals that may be Input

The configuration of the input and output connectors and the signals that may be input are shown below.



### Input of analog composite signals

You can input analog composite signals to connectors 1, 3, 5, 7, 9, and 11. You can obtain loop-through output of those signals from connectors 2, 4, 6, 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 2, 4, 6, 8, 10, and 12.

### Input of Y/R-Y/B-Y, RGB, or YC signals

When inputting Y/R-Y/B-Y or RGB signals, you can input Y or G signals to connectors 1 and 7, B-Y or B signals to connectors 3 and 9, and R-Y or R signals to connectors 5 and 11.

When inputting YC signals, you can input Y signals to connectors 1 and 7, and C signals to connectors 3 and 9. (Connectors 5 and 11 are not used).

You can obtain loop-through output of the above signals from connectors 2, 4, 6, 8, 10, and 12, respectively. If you do not wish to use loop-through output, attach 75-ohm terminators to connectors 2, 4, 6, 8, 10, and 12.

---

## Assigning Input Signals to Connectors

Before inputting signals to the BKM-28X, you must specify the type and format of the signal that will be input to each connector. To assign input signals to each connector, use the on-screen INPUT CONFIGURATION menu of your video monitor.

*For information about using the INPUT CONFIGURATION menu, refer to the manual of your video monitor.*

## Specifications

---

### General

Power requirements	+5 V, ±6 V (supplied from the monitor)
Power consumption	1 W
Recommended operating temperature	20°C to 30°C (68°F to 86°F)
Permissible operating temperature	0°C to 40°C (32°F to 104°F)
Operating humidity	0% to 90% (no condensation)
Maximum external dimensions (w/h/d)	25 × 256 × 245 mm ( <sup>31</sup> / <sub>32</sub> × 10 <sup>1</sup> / <sub>8</sub> × 9 <sup>3</sup> / <sub>4</sub> inches)
Mass	550g (1 lb 3 oz)

---

### Input/Output Connectors

BNC × 6, high impedance, with loop-through output

---

### Signal Characteristics

#### Analog composite signals

Signal level	Analog composite
	1 Vp-p +3 dB/-6 dB
YC	Y: 1 Vp-p ±6 dB
	C: 0.286 Vp-p ±6 dB (NTSC burst signal level)
	0.3 Vp-p ±6 dB (PAL burst signal level)
Return loss	-46 dB min. (6 MHz)

#### Analog component (Y/R-Y/B-Y, RGB) signals

Signal level	Y/R-Y/B-Y	Y: 1 Vp-p ±6 dB
		R-Y: 0.7 Vp-p ±6 dB
		B-Y: 0.7 Vp-p ±6 dB
	R/G/B	1 Vp-p ±6 dB (sync on G)
Frequency characteristics	Y	100 Hz to 6 MHz ±2dB
	R-Y/B-Y	100 Hz to 6 MHz ±2dB
	R/G/B	100 Hz to 6 MHz ±1dB
Chrominance signal/luminance signal	Delay time error	50 nsec max.
	Gain error	5% max.
Aperture compensation (Y/R-Y/B-Y)	Off:	0 dB
	On:	2 to 6 dB (5 MHz)
Return loss		-46 dB min. (6 MHz)

---

### Accessories Supplied

Installation Manual (1)

Design and specifications are subject to change without notice.

# Combination of Multiple Adaptors

You can configure an input and output connector panel by installing any combination of adaptors in the input option slots on the rear panel of the video monitor.

By combining adaptors of different types, you gain access to a wider range of input signals than would be possible with a single adaptor type. The input signals made available by different combinations of adaptor types are shown in the table below.

The number of input option slots varies with video monitors, and to specify signal types for each input connector, use the on-screen INPUT CONFIGURATION menu of your video monitor.

*For information about the input option slots and using the INPUT CONFIGURATION menu, refer to the manual of your video monitor.*

## Internal Connections between Decoders

When you install a decoder adaptor (BKM-20D/21D/24N/26P/26M/27T), it is connected to the other adaptors installed in your video monitor's input option slots over an internal bus. Therefore, if you install a decoder adaptor for a given signal, you can decode that signal even when it is input to another adaptor.

### Note

Only one BKM-22X board can be installed in the monitor together with either the BKM-20D or the BKM-21D.

		Adaptor name							
		BKM-20D SDI 4:2:2 Decoder Adaptor	BKM-21D SDI Multi Decoder Adaptor	BKM-24N NTSC Decoder Adaptor	BKM-25P PAL Decoder Adaptor	BKM-26M PAL-M Decoder Adaptor	BKM-27T Tri- Standard Decoder Adaptor	BKM-22X SDI Input Expansion Adaptor	BKM-28X Analog Input Expansion Adaptor
Serial digital input	Component 525/625	O	O					®	
	Composite NTSC	®	O					®	
	Composite PAL	®	O					®	
Analog input	Composite NTSC	®	O	O	®	®	O	®	®
	Composite PAL	®	O	®	O	®	O	®	®
	Composite PAL-M	®	®	®	®	O	®	®	®
	Composite SECAM	®	®	®	®	®	O	®	®
	Y/R-Y/B-Y 525/625	O	O	O	O	O	O	O	O
	RGB 525/ 625	O	O	O	O	O	O	O	O
	Y/C NTSC			O	®	®	O		®
	Y/C PAL			®	O	®	O		®
Y/C PAL-M			®	®	O	®		®	
Number of digital inputs		3	3	–	–	–	–	3	–
Number of analog input		3	3	6	6	6	6	3	6

O: Independent input possible

® : Input possible when used with decoder adaptor

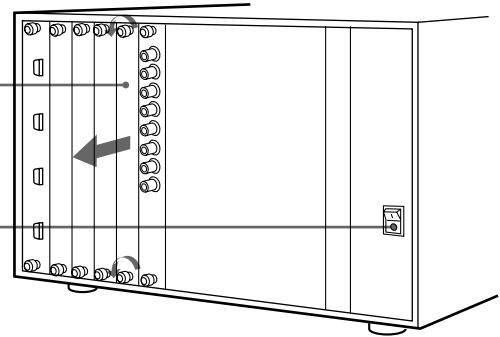
# Installing into Video Monitors

Each adaptor can be installed in any input option slot.  
Always turn your video monitor's MAIN POWER switch off before installing or removing adaptors.

- 1** Remove the cover of an input option slot on the rear panel of your video monitor.

Cover of an input option slot

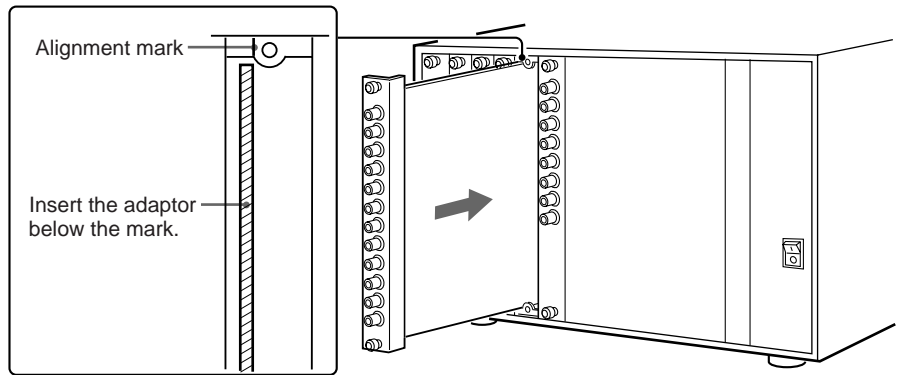
Check to be sure that the video monitor's MAIN POWER switch is off.



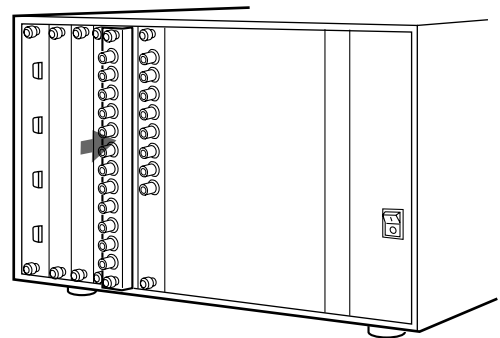
- 2** Insert the adaptor below the alignment mark on the left of the upper screw hole of the slot.

Alignment mark

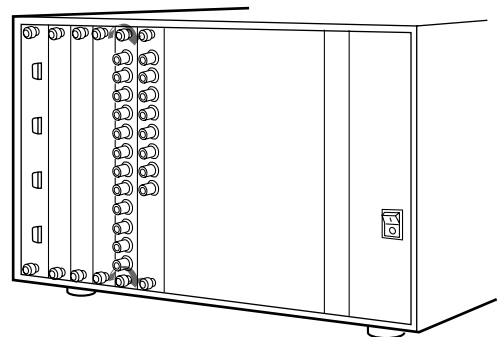
Insert the adaptor below the mark.



- 3** Push the adaptor in until it is firmly seated in the connector inside your video monitor.



- 4** Tighten the both screws to retain the adaptor.



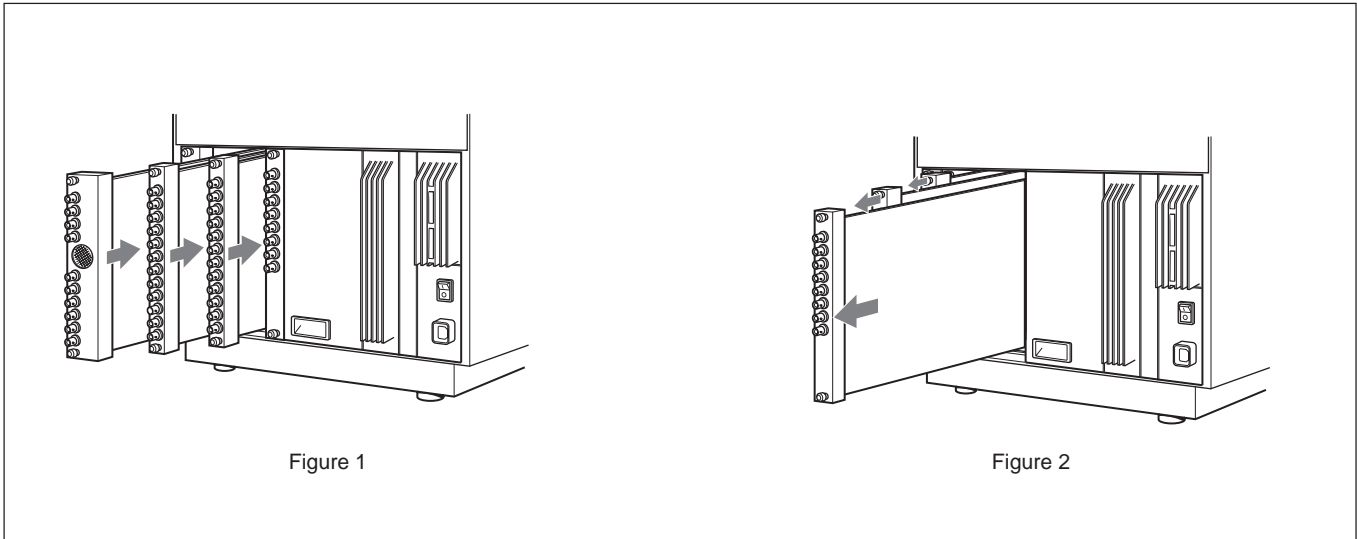
# Installing into Video Monitors

## Note on using the BKM-20D/21D

When installing the input adaptor in an input option slot on the rear of the monitor, or fitting a cover plate to an unused slot, always do such operation in order from the rightmost slot, as shown in Figure 1. If a BKM-20D/21D is already installed, first of all remove it and then do the installing operation in order from the

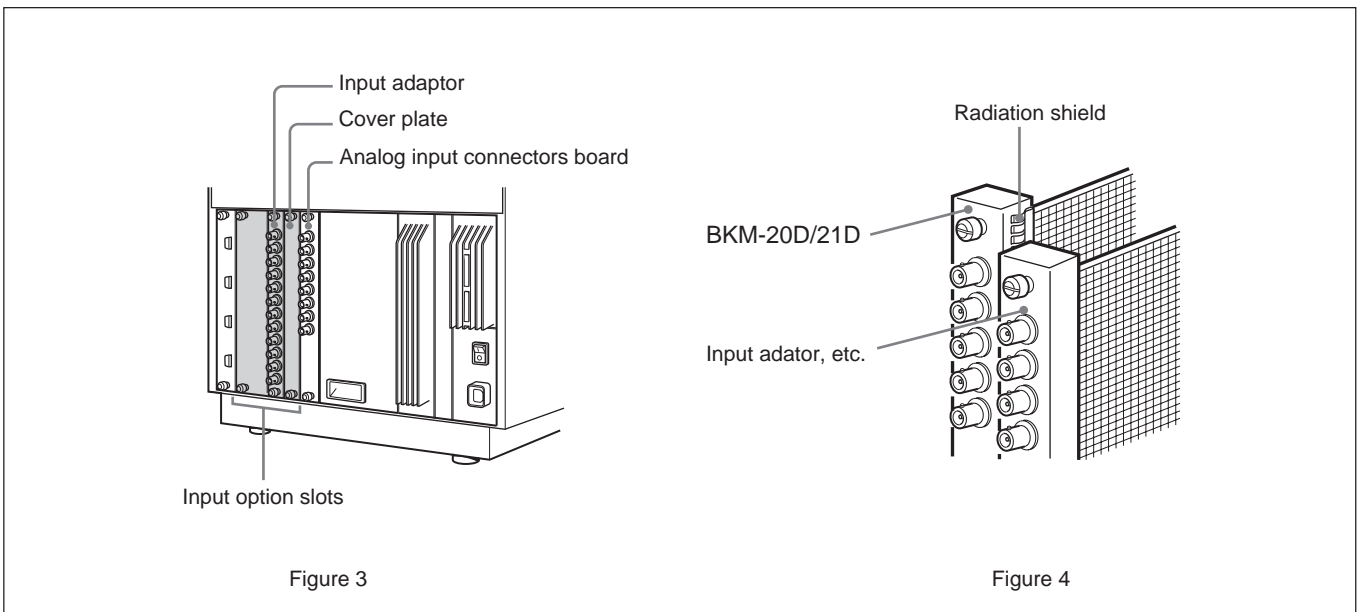
rightmost slot.

When removing a BKM-20D/21D, always loosen all input adaptor screws and then remove in order from the rightmost slot, as shown in Figure 2.



When one of the input option slots on the rear of the monitor has a BKM-20D/21D (optional) installed, if the slot to the right has another adaptor or the analog input connectors board, or a cover plate fitted, as shown in Figure 3, the radiation shield of the BKM-

20D/21D may be damaged or detached (*see Figure 4*). Using the BKM-20D/21D with the radiation shield damaged or detached may result in electromagnetic interference. Always use care about the radiation shield.





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BKM-20D/21D/22X/24N/  
25P/26M/27T/28X  
(WW, 和, 英)  
3-810-095-07(1)

**Sony Corporation**  
B&P Company  
<http://www.sony.net/>

Printed in Japan  
2004.02.08  
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