The AJ-HD3700B studio-quality HD Mastering VTR is designed to meet today's needs in high-definition recording while extending the D-5 tradition of high-quality non-compressed standard-definition recording and playback. This single 5U VTR handles HD formats 1080/59.94i, 720/59.94P, 1080/23.98PsF, 1080/23.98P, 1080/24PsF, 1080/24P, 1080/50i, 1080/25P and 1080/25PsF, as well as 480/59.94i and 576/50i. It provides full editing in all formats. A built-in HD-SD format converter also allows conversion between most formats. And to improve filmmaking convenience, the AJ-HD3700B adds time code conversion functions for use in 24p audio mastering.

## HD Studio Picture Quality

Full-resolution 4:2:2 digital 10-bit component recording with 74.176 MHz (Y) and 37.088 MHz (Pb/Pr) sampling assures the picture quality demanded in high-end applications.

The AJ-HD3700B easily meets HD studio standards for production, editing and broadcasting. Its picture quality is particularly well suited for repeated dubbing and editing, and for large-screen playback.

## High Quality Film Mastering

The AJ-HD3700B can record and play back 1080/23.98PsF and 1080/24PsF HD formats. Progressive image recording of 24-fps film sources without frame rate conversion enhances artistic image expression. It allows high-quality digital mastering of film content, such as movies and commercials, into formats suitable for broadcasting and DVD packaging.

## HD Multi-Format Recording

In addition to 1080/23.98PsF and 1080/24PsF, the AJ-HD3700B records and plays back in 720/59.94P and 1080/50i HD broadcasting formats. It will also supports 1080/59.94i, 1080/23.98P, 1080/24P, 1080/25P, and 1080/25PsF HD formats. In short, this universal VTR is capable of handling virtually all production and post-production needs.

## SDTV Compatible

The AJ-HD3700B also records and plays back 480/59.94i (NTSC) and 576/50i (PAL) signals. The D-5 format's 10-bit, 4:2:2 non-compressed digital component recording allows it to serve as a high-end VTR in your editing system, replacing older equipment.

## 8-channel Digital Audio

In HD mode, the AJ-HD3700B provides eight channels of 48-kHz sampling, 24-bit digital audio. This mode can be used for multilingual broadcasting and 5.1 surround sound plus stereo. Allowing you to select from eight channels of digital input/output, and four channels of analog input/output, this high-end unit also features Dolby-E* (compressed multi-channel audio) system. And it's compatible with conventional 20-bit, 4-channel audio**.

*Dolby-E is a registered trademark of Dolby Laboratories.
**The 8-channel format and 4-channel format are not compatible.
Video and audio signals recorded on HD D-5 tapes / D-5 (SD) tapes in the 8-channel format cannot be played back by conventional 4ch models, such as the AJ-HD2700.

## Recording Format

| Input Signal | | Recording Format | Audio | | Recording Time |
|---|---|---|---|---|---|
| | | | 8CH | 4CH | |
| HD | 1080/59.94i | HD D5 (10bit 4:2:2) | 8ch (24bit/48kHz) | 4ch (20bit/48kHz) | 124 min. |
| | 720/59.94P | | | | |
| | 1080/23.98PsF | | | — | 155 min. |
| | 1080/23.98P | | | | |
| | 1080/24PsF | | | | |
| | 1080/24P | | | | |
| | 1080/50i | | | | 149 min. |
| | 1080/25PsF | | | | |
| | 1080/25P | | | | |
| SD | 480/59.94i | D-5 (10bit 4:2:2) | 8ch (24bit/48kHz) | 4ch (20bit/48kHz) | 124 min. |
| | 576/50i | | | — | 112min. |
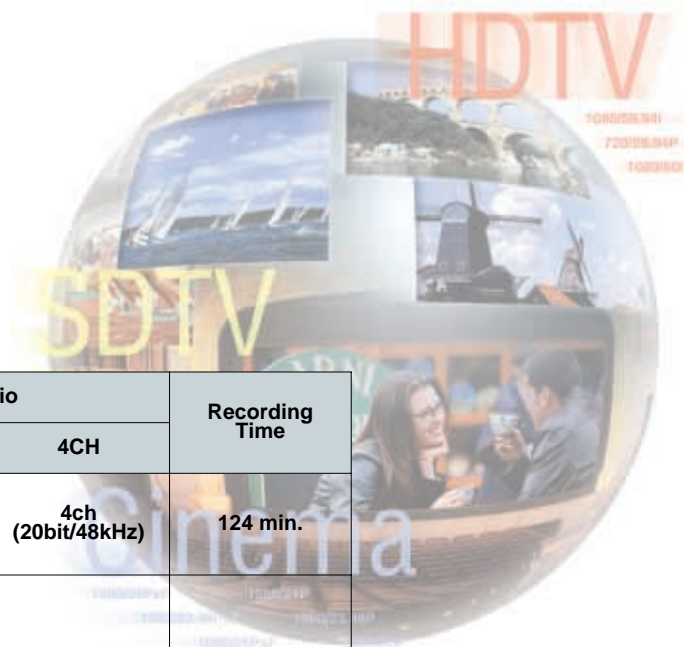
## Equipped with an HD-SD Converter

The AJ-HD3700B also comes equipped with an HD-SD format converter board that lets you play HD and SD tapes and convert the output to the desired format. You can convert in either direction between HD and SD, or convert from 24p to HD. You can also perform the following conversions or adjustments.

**Aspect ratio conversion:** Convert to the aspect ratio that best suits the application.

• When up-converting from original SD images to HD, you can select Side Panel, Stretch, or Top/Bottom Crop.

• When down-converting from HD images to SD, you can select Letter Box, Semi Letter Box 14:9, Semi Letter Box 13:9, Side Crop, or Squeeze.

**Image adjustment:** A colorimetry conversion function corrects color gamma differences resulting from HD/SD conversion. Gain, set-up, and edge emphasis can also be adjusted, and the image can be output as it is being adjusted.

## Variety of Remote Terminals

The AJ-HD3700B comes standard with 9-pin serial (RS-422A), 50-pin parallel, and 25-pin RS-232C remote interfaces. 15-pin video/audio control and 20-pin control panel terminals are also provided.

## Equipped with HD-SDI/SD-SDI

The AJ-HD3700B features HD-SDI (SMPTE291M/292M) in/out and SD-SDI (SMPTE259M/272M) in/out. The D-5 format's superior recording specifications assure the highest dubbing and editing quality when using HD-SDI. HDTV and SDTV signals can be output in parallel using the standard equipped format converter. While an HD source is being transmitted, the signal can be simultaneously down-converted to SDTV and transmitted — giving you an easy way to utilize the same content in multiple formats.

## Compact Size, Easy Installation

Mounting the HD-SD format converter inside the 5U-size AJ-HD3700B, you get single-unit operation with space-saving size. The AJ-HD3700B fits in a 19-inch rack for easy installation in OB vans. Power consumption is only 260 W, so operating costs are low.

## Slow, Search and Edit Functions

Auto Tracking (AT) allows noiseless playback from normal-speed reverse to 2 times forward speed. Shuttle search runs at 50 times normal speed in both forward and reverse. Editing functions include assemble and insert edit, audio split, and variable memory. Its 0-frame editing accuracy is assured when using the SMPTE/EBU time code.
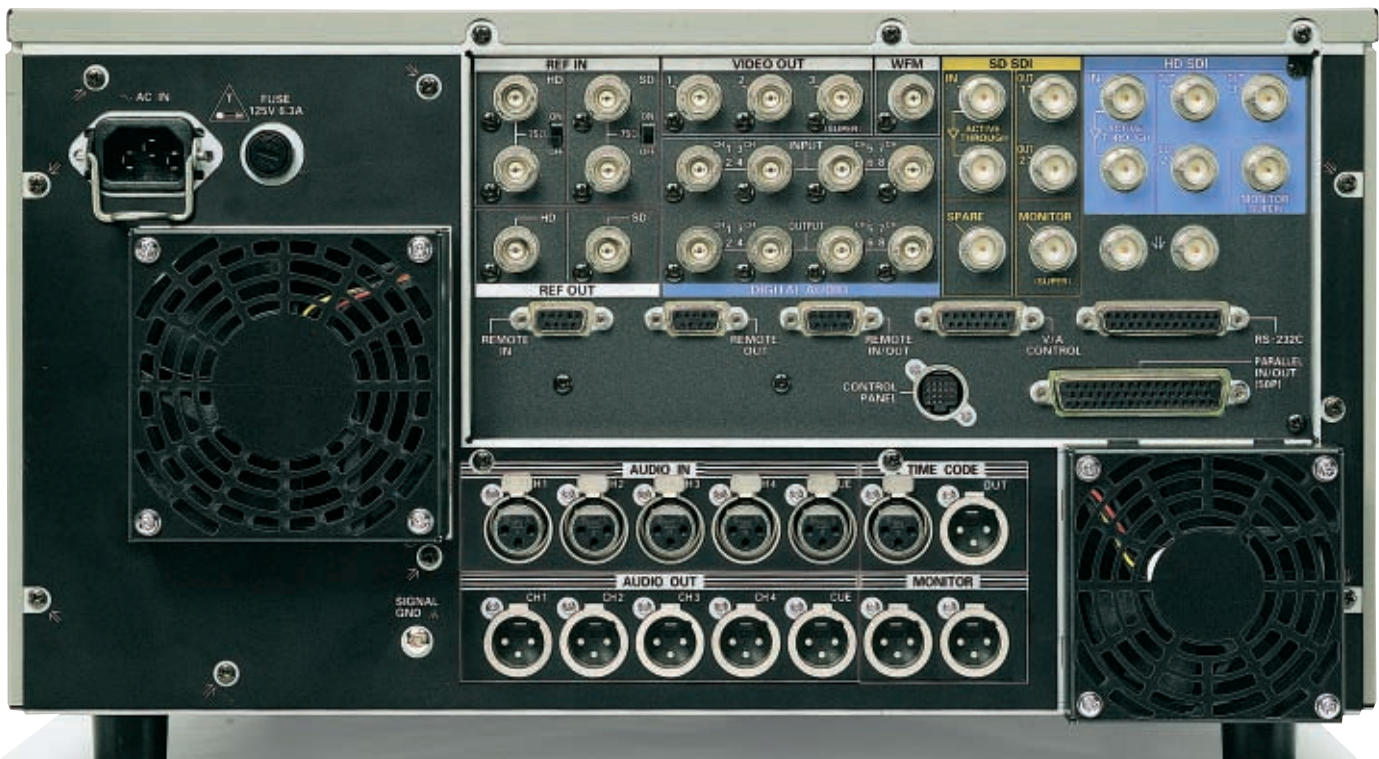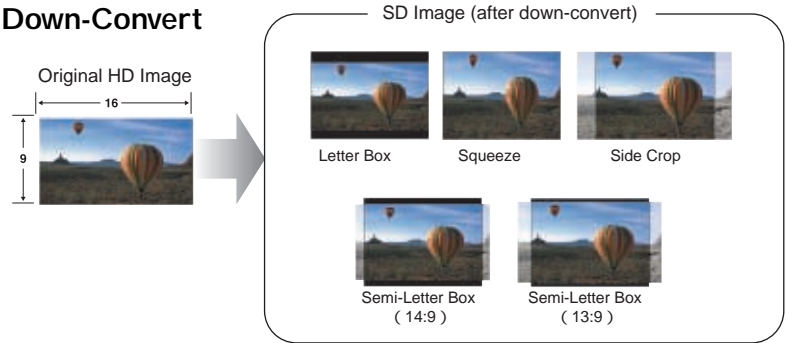
## Up-Down Conversion

| Playback Tape Format | Video Output | |
|---|---|---|
| | HD | SD |
| 1080/59.94i | 1080/59.94i | 480/59.94i |
| 1080/23.98P<br>1080/24P<br>1080/25P | 1080/59.94i<br>1080/60i<br>720/59.94P<br>720/60p<br>1080/23.98PsF<br>1080/23.98P<br>1080/24PsF<br>1080/24P<br>1080/50i<br>1080/25PsF<br>1080/25P | 480/59.94i<br>480/59.94P<br>576/50i |
| 1080/50i | 1080/50i | 576/50i |
| 720/59.94P | 720/59.94P | 480/59.94i<br>480/59.94P |
| 480/59.94i | 1080/59.94i | 480/59.94i |
| 576/50i | 1080/50i | 576/50i |

## Up-Convert

Original SD Image



HD Image (after up-convert)

Side Panel     Stretch     Top and Bottom Crop

## Down-Convert

Original HD Image



SD Image (after down-convert)

Letter Box     Squeeze     Side Crop

Semi-Letter Box 14:9     Semi-Letter Box 13:9

## Pre-Read in 480/59.94i or 576/50i Modes

The AJ-HD3700B provides pre-read editing in 480/59.94i or 576/50i SDTV modes. This lets you add effects to the video and audio, and re-record the results on the same VTR.

## Ancillary Recording

The AJ-HD3700B can record and read ancillary data such as Metadata or Closed Caption Data.

## Simultaneous Playback Monitoring

Simultaneous playback monitoring of video, digital audio, time code and CTL signals is possible.

## Channel Condition Monitor

The error rate is monitored at all times. When the setting is exceeded, an indicator on the front panel lights to warn you of a damaged tape or head clogging.

## Built-in Test Signal Generator

Color bar signals and other test signals, which come in handy for conducting maintenance and adjustments and for checking connections, are generated internally.

## Time Code Conversion Functions for 24p Audio Mastering

AJ-HD3700B responds to movie industry needs with a 24-Hz/30-Hz time code conversion function that allows editing of 30-fps audio sources for 24p film use, and a 25-Hz time code output function that allows DAT synchronizing during 24p playback of 25-fps sources. This eliminates the need for a separate 24p audio mastering process, bringing greater speed and ease to filmmaking.

**24-Hz to 30-Hz time code conversion**
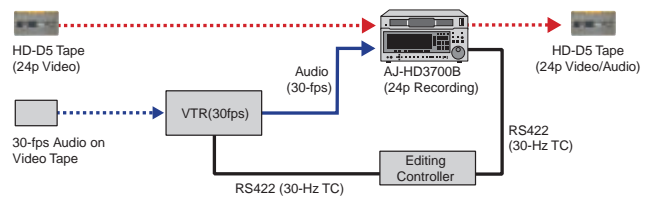


**25-Hz time code output in 24p**
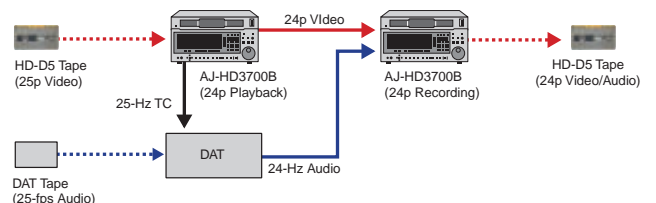
# Supporting cast

## AJ-HDC27F  Variable-Frame Camera/Recorder

This HD cinema camera shoots and records progressive scan images at any frame rate from 4 fps to 60 fps, including 24 fps. It also includes the Cine Gamma function, which gives recordings the same tone and rich gradation as film and allows HD recording using the speed effects of film cameras. In addition to lowering costs and improving mobility, the AJ-HDC27F lets you create a wide range of HD content, including episodic television, music videos, DVDs, and Internet new-media projects.

| AJ-HDC27F | Three 1-million-pixel IT CCDs |
|---|---|
| Multi frame rate of 4-fps to 60-fps include 24-fps | |
| 1280 x 720 progressive scan | f12 @ 2000 lux |

## AJ-GBX27  HD Gamma Corrector

The AJ-GBX27 corrects images recorded in cine gamma (VARICAM F.REC mode) for converting monitor and content data, and for a variety of other uses. The AJ-GBX27 is extremely easy to use -- simply choose the desired correction mode.

Field mode corrects low-contrast F.REC gamma images, and outputs monitor images with full film texture.  Telecine mode is a post-processing mode that uses movie footage to produce TV content with a film-like texture.  The Video Rec and Video modes are simulation modes for converting images with F.REC gamma to V.REC gamma or video gamma.  CG mode is a film production mode that reverse-converts images into F.REC images after they were previously converted to telecine mode and CG-processed for production ease.

| AJ-GBX27 | 12V DC power supply |
|---|---|
| Compatible with 720p, 1080i and 1080p | |
| HD-SDI in/out | Analog HD (Y/Pb/Pr) out |

## AJ-HD1700  Full-Featured Studio VTR

The AJ-HD1700 is a DVCPRO HD high-end studio master VTR that answers today's most advanced needs in high-definition production and broadcasting.

Featuring the new DVCPRO HD-LP format, the AJ-HD1700 records and plays up to 126 minutes with an XL cassette. It can record three types of HD images — 1080/60i, 720/60p, and 1080/50i — and is equipped with eight digital audio channels for 5.1-channel surround sound.  The AJ-HD1700 plays all DVCPRO HD, DVCPRO50, DVCPRO P, DVCPRO, DV, and DVCAM tapes. It has an advanced HD-SD conversion function that provides simultaneous output of HD/SD signals from a wide variety of sources.

The AJ-HD1700 can even output a 1080/24p signal from a 720/24p over 60 VARICAM source tape for convenient editing in 1080/24p such as mastering to HD-D5 on the AJ-HD3700B VTR.

The AJ-HD1700 can also output a 1080/25p and 576/50i signal from a 720/50p over 60 VARICAM source tape for PAL editing.

| AJ-HD1700 | Plays/Records 720p and 1080i |
|---|---|
| Playback all DV-based formats | 2-hour rec. time |
| 1080/24p output from Varicam™ | 8-ch audio |

## AJ-UFC1800  Universal Format Converter

Convert between any ATSC format with superb picture quality. Automatic time code conversion and 8-channel audio processing/delay are standard features. Variable/multiple aspect ratio conversion is built-in along with image and color enhancement.

The AJ-UFC1800 accommodates slow-PAL operation with its 3:2 pull-down function, and is a perfect complement when working with film-based material. This universal format converter is ideal for today's digital video facilities.

| AJ-UFC1800 | 16:9/4:3 aspect ratio conversion |
|---|---|
| Selectable color matrix for HD or SD | |
| GPI activated presets | 3U rack mount |

## Optional Equipment

**AJ-MA37**
Rack Mount Adaptor
(slide rail, not included)

## D-5 Cassette Tape

| | Model No. | REC/PLY Time @59.94Hz |
|---|---|---|
| L Cassette | AJ-D5C124L | 124 min. |
| | AJ-D5C94L | 94 min. |
| M Cassette | AJ-D5C63M | 63 min. |
| | AJ-D5C48M | 48 min. |
| | AJ-D5C33M | 33 min. |
| | AJ-D5C12M | 12 min. |
| S Cassette | AJ-D5C23S | 23 min. |

# HD Cinema

## HD acquisition for new multi-media opportunities.

Panasonic HD Cinema recording and video projection technologies are on the cutting edge of the new digital cinema era. By combining HD digital acquisition with HD digital projection, new business opportunities become reality for live pay-per-view concerts, sporting events, theater and other special event programming.

## Panasonic's PT-D7600U large-venue DLP projector -- the next-generation in economical, high-contrast HD digital projectors.

The world's first Mercury engine 3-chip DLP(Digital Light Processing™) projector delivers cost efficiencies, lightweight and an outstanding brightness of 6000 lumens. The SXGA-resolution PT-D7600 is the perfect fit for mastering rooms and edit suites. Its exclusive BlackOptic processing and advanced color matching combine to deliver a cinema-quality 1000:1 contrast ratio and perfectly-matched, brilliant colors. The 44-pound PT-D7600 produces high image quality over a long time thanks to its powerful, dust-free Liquid-cooled Light Engine. Also available is the PT-D7500, a 5,000 ANSI lumens bright, XGA resolution 3-chip DLP projector with the same great features.

*DLP is a trademark of Texas Instruments.

# AJ-HD3700B Specifications

## General

| | |
|---|---|
| Power Supply: | AJ-HD3700BP; AC 120V , 50/60 Hz<br>AJ-HD3700BE; AC220V to 240 V, 50/60 Hz |
| Power Consumption: | 260W |
| Operating Temperature: | 41 °F to 104 °F (5°C to 40°C) |
| Operating Humidity: | 10% to 90% (non dew) |
| Weight: | 70.1 lbs (31.8 kg) |
| Dimensions (WxHxD): | 16-3/4" x 8-11/16" x 20-1/2" (424 x 220 x 520 mm) |
| Recording Format: | HD:HD-D5 (Video Compression; Intra-Field DCT + VLC)<br>SD:D5 (Non Compression Digital Component Recording) |
| Recording Track: | Video; 12 track/Field, Audio; 12 track, TC/CTL/CUE Track |
| Recording Track (576/50i): | Video; 16 track/Field, Audio; 16 track, TC/CTL/CUE Track |
| Rec/Play Time:<br>(with AJ-D5C124LP) | 124 min. (1080/59.94i, 720/59.94P, 480/59.94i,)<br>155 min. (1080/24PsF, 1080/23.98PsF, 1080/24P, 1080/23.98P)<br>149 min. (1080/50i, 1080/25P, 1080/25PsF)<br>112 min (576/50i) |
| Tape: | D5 Cassette Tape |
| FF/REW Time: | within 195 sec. (with AJ-D5C124LP) |
| Search Speed: | ±50x |
| Editing Accuracy: | ±0 frame (TC) |
| Tape Timer Accuracy: | ±1 frame |
| Servo Lock Time: | Within 1 sec |
| AT Slow-motion Range: | −1x to +2x |

## Video

### • HDTV Recording

| | |
|---|---|
| Format: | 1080/59.94i, 1080/24PsF, 1080/24P, 1080/23.98PsF,<br>1080/23.98P, 1080/50i, 1080/25PsF, 1080/25P<br>720/59.94P |
| Active Samples/Line | Y: 1920, Pb/Pr: 960 (1080)<br>Y: 1280, Pb/Pr: 640 (720) |
| Active Lines/Frame | 1080 lines (1080)<br>720 lines (720) |
| Sampling/Quantization: | 4:2:2, Y: 74.176 MHz, Pb/Pr: 37.088 MHz/10 bit |

### • SDTV Recording

| | |
|---|---|
| Format: | 525 line/59.94 field, 2:1 Interlace (SMPTE259M-C)<br>625 line/50 field/2:1 Interlace (ITU-R BT.656-4) |
| Active Samples/Line | Y; 720, Pb Pr; 360 |
| Sampling/Quantization: | 4:2:2, Y: 13.5 MHz, Pb/Pr: 6.75 MHz/10bit |

## Digital Audio

| | |
|---|---|
| Channel: | 8 channels (1080/23.98PsF, 1080/23.98P, 1080/24P, 1080/24PsF,<br>1080/50i, 1080/25PsF, 1080/25P, 576/50i)<br>4 ch/8 ch selectable (1080/59.94i, 720/59.94P, 480/59.94i) |
| Sampling Frequency: | 48kHz |
| Quantization: | 20 bit (4ch), 24 bit (8ch) |
| Frequency Response: | 20Hz to 20kHz, ±0.5dB |
| Dynamic Range: | More than 105dB (1kHz, "A" weight) |
| Distortion: | within 0.01% (1kHz, reference level) |
| Cross Talk: | Less than −80dB (1kHz, between 2channels) |
| Wow & Flutter: | Below measurable limit |
| Headroom: | 20/18 dB (switchable) |
| Input/Output Level: | +4/0/-20dB switchable |

## Cue Audio

| | |
|---|---|
| Frequency Response: | 100Hz to 12kHz (±3.0dB) |
| S/N Ratio: | More than 44 dB (at 3% distortion) |
| Distortion: | Less than 2% (at 1kHz reference signal) |
| Wow & Flutter: | Less than 0.15% (NAB unlimited) |
| Input/Output Level: | +4/0/-20 dB switchable (Input only)<br>-∞ to +18dB adjustable (In/Out) |

## Video Input

| | |
|---|---|
| HD SDI In: | BNC x 2, Active through 1.5Gbps<br>(embedded Audio, Time Code) (SMPTE291M/292M) |
| SD SDI In: | BNC x 2 Active through 4:2:2 Component SDI<br>(SMPTE259M/272M) |
| HD Reference In: | BNC x 2 Through Out Analog Tri Level sync. 75Ω On/Off |
| SD Reference In: | BNC x 2 Through Out Analog Composite 75Ω On/Off |

## Video Output

| | |
|---|---|
| HD SDI Out: | BNC x 3, 1.5Gbps |
| HD SDI Monitor Out: | BNC x 1, 1.5Gbps (Superimpose) |
| SD SDI Out: | BNC x 2, 4:2:2 Component SDI Output (SMPTE259M/272M) |
| SD SDI Monitor Out: | BNC x 1 (Superimpose) |
| Analog Out: | BNC x 2, Analog Composite |
| Analog Monitor Out: | BNC x 1, Analog Composite (Superimpose) |

## Audio Input

| | |
|---|---|
| Digital Audio In: | BNC x 4, Ch1/2, Ch3/4, Ch5/6, Ch7/8,<br>AES-3, 75Ω unbalanced |
| Analog Audio In: | XLR (3pin) x 4, Ch1/2/3/4 Max. +24dBm 600Ω/high impedance |
| Cue In: | XLR (3pin) x 1 Max. +14dBm, 600Ω/high impedance |

## Audio Output

| | |
|---|---|
| Digital Audio Out: | BNC x 4, Ch1/2, Ch3/4, Ch5/6, Ch7/8,<br>AES-3, 75Ω unbalanced |
| Analog Audio Out: | XLR (3pin) x 4, Ch1/2/3/4 Max. +24dBm, low impedance |
| Cue Out: | XLR (3pin) x 1 Max. +14dBm, low impedance |
| Monitor Out: | XLR (3pin) x 2, L/R Max. +24dBm, low impedance |
| Headphones Out: | Level; Variable Control |

## Others

| | |
|---|---|
| TC In: | XLR x 1, 2.4 ±1.4Vp-p, 10kΩ balanced |
| TC Out: | XLR x 1, 2.0 + 0.5 Vp-p, low impedance balanced |
| WFM Out: | BNC x 1<br>RF ENV (Ch 0,1,2,3)/RF EYE (Ch 0,1,2,3)<br>CTL (R/P CONF)/TC Selectable |
| SD Sync. Signal: | BNC x 1 Black Burst |
| HD Sync. Signal: | BNC x 1, Analog HD Tri Level sync. (+/-0.3V) |

## Remote

| | |
|---|---|
| RS-422A In: | D-sub 9 pin RS-422A I/F |
| RS-422A Out: | D-sub 9 pin RS-422A I/F |
| RS-422A In/Out: | D-sub 9 pin RS-422A I/F |
| RS-232C Out: | D-sub 25 pin RS-232C I/F |
| Parallel: | D-sub 50 pin |
| V/A Control: | D-sub 15 pin Video Remote |
| Control Panel: | 20P x 1 Connection for Front Control Panel |

## Optional Accessories

| | |
|---|---|
| Rack Mount Adaptor: | AJ-MA37 (slide rail, not included) |

Weight and dimensions shown are approximate.

Features and specifications are subject to change without notice.

These products may be subject to export regulations.

# Panasonic

[Countries and Regions]

| | | | | | |
|---|---|---|---|---|---|
| Argentina | +54 1 308 1610 | Korea | +82 2 6670 5160 | Spain | +34 (93) 425 93 00 |
| Australia | +61 2 9887 6222 | Kuwait | +965 481 2123 | Sweden | +46 (8) 680 26 41 |
| Austria | +43 (0)1 610 80 773 | Lebanon | +961 1 216827 | Switzerland | +41 (0)41 259 96 32 |
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| China | +86 10 6515 8828 | New Zealand | +64 9 272 0100 | | +380 44 4903438 |
| (Hong Kong) | +852 2313 0888) | Norway | +47 67 91 78 00 | | [ext. 112] |
| Czech Republic | +420 236 032 552/511 | Pakistan | +92 5370320 21 | U.K | +44 (0) 1344 70 69 20 |
| Denmark | +45 43 20 08 57 | Panama | +507 229 2955 | U.S.A. | +1 201 348 5300 |
| Egypt | +20 2 3938151 | Peru | +51 145 29470 | | |
| Finland, Latvia, Lithuania, Estonia* | | Philippines | +63 2 633 6162 | | |
| | +358 (9)521 52 53 | Poland | +48 (22)338 1100 | | |
| France | +33 (0)1 49 46 43 59 | Portugal | +351 21 425 77 04 | | |
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| Greece | +30 210 96 92 300 | Romania* | +40 21 211 4855 | | |
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| Indonesia | +62 21 801 5666 | Saudi Arabia | +966 1 465 0709 | | |
| | +62 21 385 9449 | Singapore | +65 6270 0110 | | |
| Iran | +98 21 2271463 | Slovak Republic | +421 (0)2 52 92 14 23 | | |
| Italy | +39 02 67 88 449 | Slovenia, Croatia, Bosnia, Macedonia* | | | |
| Jordan | +961 6 586 1914 | | +44 (0)20 76 63 36 57 | | |
| Kazakhstan | +7 3272 504 777 | South Africa | +27 11 313 1400 | | |

SP-HD37BPE1

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