Panasonic

ideas for life

AJ-HDX400

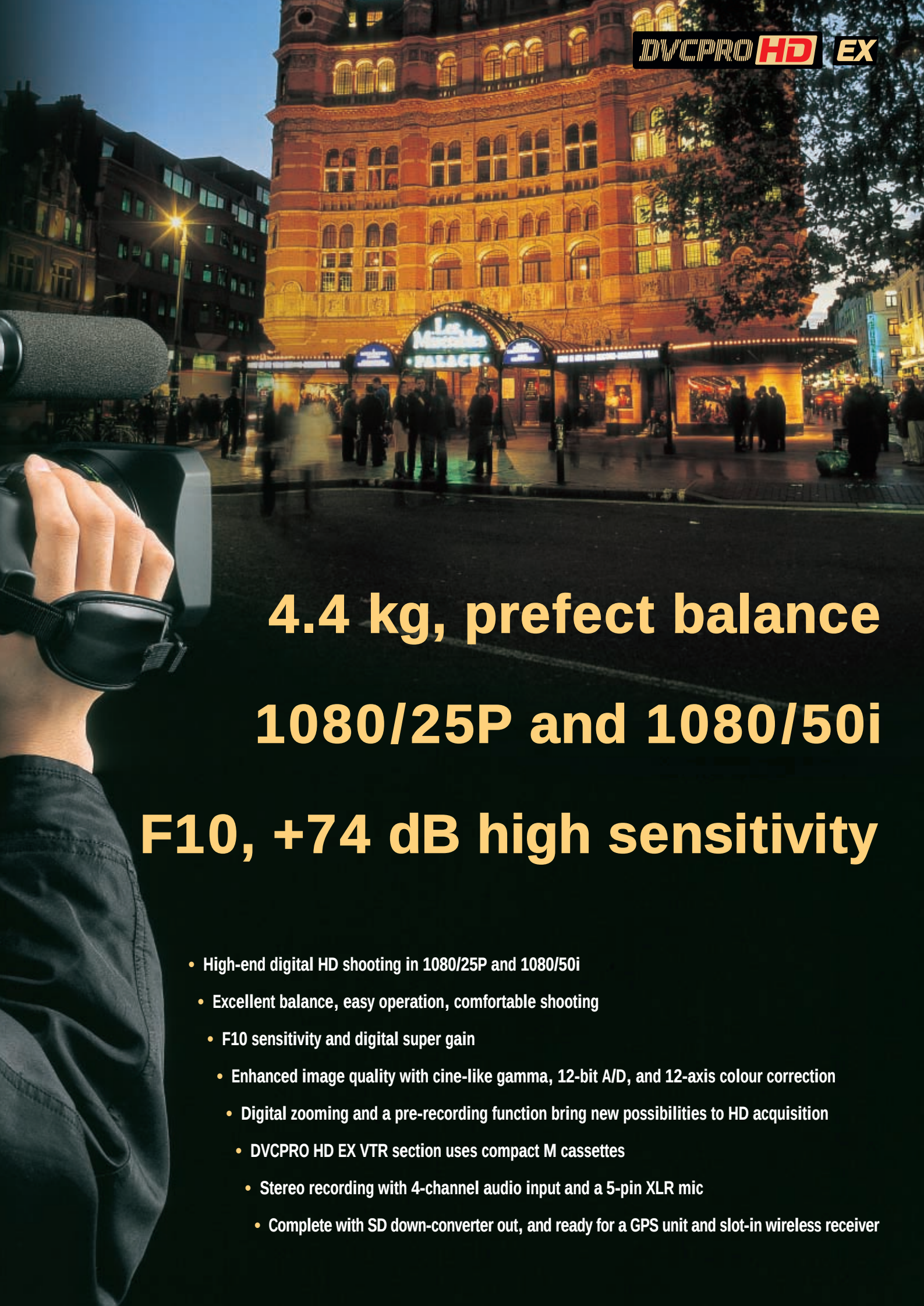
DVCPRO HD Camera-Recorder
(1080/25P, 1080/50i)

DVCPRO HD EX

A New Era in HD Acquisition

DVCPRO HD camera-recorder brings higher image quality, sensitivity, mobility and cost-performance to 1080 digital HD recording

Developed for HD acquisition and recording, the AJ-HDX400 provides both 1080/25P (sF) and 1080/50i HD recording to meet professional needs in areas for production of dramas and television commercials.
The camera section combines high sensitivity and image quality with a host of new functions highlighted by digital super gain and digital zoom. The DVCPRO HD VTR section features a compact, lightweight body design that ensures superb mobility, balance and operating ease.
Add it up, and the AJ-HDX400 debuts as a high-end, high-cost-performance digital HD camera-recorder that's reliable, easy to carry, and comfortable to use.



4.4 kg, prefect balance

1080/25P and 1080/50i

F10, +74 dB high sensitivity

- High-end digital HD shooting in 1080/25P and 1080/50i
- Excellent balance, easy operation, comfortable shooting
- F10 sensitivity and digital super gain
- Enhanced image quality with cine-like gamma, 12-bit A/D, and 12-axis colour correction
- Digital zooming and a pre-recording function bring new possibilities to HD acquisition
- DVCPRO HD EX VTR section uses compact M cassettes
- Stereo recording with 4-channel audio input and a 5-pin XLR mic
- Complete with SD down-converter out, and ready for a GPS unit and slot-in wireless receiver

Camera Section

HD Shooting with High Sensitivity, Superb Picture Quality

1080/25P and 1080/50i HD Shooting System

This newly developed system features a progressive CCD that lets you shoot 50p images and uses Progressive/Interline conversion to produce 1080/25P and 1080/50i images. This means that the AJ-HDX400, with its high-sensitivity, low-cost IT CCD, lets you capture images with virtually the same high quality and low smear that you would get with a 2-million-pixel FIT CCD.

12-Bit A/D Signal Processing Circuit

The AJ-HDX400 features a new DSP circuit that uses 12-bit rather than conventional 10-bit processing for A/D conversion. This achieves better overall picture quality, with finer gradation and improved colour expression.

F10 Sensitivity, Digital Super Gain, and Line Mix

Extremely bright for an HD camera, the AJ-HDX400's lens produces crisp images even in normal mode. It also features both conventional electronic gain and digital super gain (frame cumulative mode), enabling ultra-sensitive recording up to +74 dB*[1]. In contrast to the increased noise of electronic gain functions, this system maintains a high S/N*[2]. The line mix mode also accommodates moving images. Combine the digital super gain, conventional electronic gain, and line mix mode to respond flexibly to virtually all shooting situations.


Nomal Gain UP Image


Digital Super Gain UP Image

*[1] Combining electronic gain with +48 dB, 6P cumulative mode with +20 dB, and line mix with +6 dB.

*[2] The use of cumulative frames reduces the number of frames per second, giving moving images a frame-by-frame effect.

Four Gain Settings

Gain selector: (electronic)	Select three values from –3/0/+3/+6/+9/+12/+15/+18/+21/+24/+27/+30 dB.
Super gain: (electronic)	Select one value from +30/+36/+42/+48 dB for one-touch gain increase.
Digital super gain : (frame cumulative mode)	Select one value from +6 dB (25P)/+10 dB (16P)/ +12 dB (12P)/+15 dB (8P)/+20 dB (5P) for one-touch registration.
Line mix gain: (electronic)	Switch ON and OFF from the menu for a +6 dB effect.

"Cine-Like" 1080/25P Images

With the AJ-HDX400 you can record progressive 1080/25PsF images then use the “cine-like” gamma curve to give the images a rich, film-like tone that is ideal for high-quality dramas, television commercials or music video clips. 1080/25PsF images can be directly edited and used for production in a 1080/50i environment.

400% Digital Zoom

You can digitally enlarge the CCD image to 200%, 300% or 400% of the normal lens magnification. HD images retain their superior resolution even with zooming, and — unlike when a lens extender is used — brightness is not reduced. Ideal as both a shooting technique and focusing support.

*Jagged edges typical of digital zooming appear in 3x and 4x zoom images.

User Scene Files

Store specific camera settings in built-in memory, then retrieve them when needed for quick, easy setup. Four files with settings can be stored in the camera's memory.
Files can also be copied onto an SD Memory Card, allowing storage of up to eight files.

Built-in Image-Enhancing Circuits

- Built-in auto knee circuit produces a wide dynamic range.
- Versatile DTL functions, including skin DTL and continuously variable DTL peak frequency.
- Precise colour management with Linear Matrix Colour and 12 Axis Colour Correction.
- Shading correction function that adjusts for use of a lens extender.

Customized User Buttons

Three user buttons are provided. Assign a function to each for easy pushbutton selection: Super Iris, Super Gain, Digital Super Gain, Super Black, Black Stretch, Front/Rear Input Select of Audio CH1/CH2, etc. You can also customize the on-screen menu with the items you use most often, then display them by simply pressing a button.

Enhanced Camera Functions and Specifications

- The electronic shutter has speeds of 1/60, 1/120, 1/250, 1/500, 1/1000, and 1/2000 sec, plus synchro-scan capability (25PsF: 1/25.2 to 1/209.4 sec, 50i: 1/50.2 to 1/209.4 sec).
- ND filter (CLEAR, 1/4ND, 1/16ND, 1/64ND) and CC filter (Cross, 3200K, 4300K, 6300K).
- Select from a variety of finder markers, or make your own.
- Display a zebra pattern for contrast adjustment, Auto White Balance setting, and colour bar output.
- One touch of the mode check button displays the camera settings for easy confirmation.

ody Design

Engineered for Optimal Balance and Operating Ease

Lightweight, Well Balanced Body

The AJ-HDX400 offers a lightness in operation that is not entirely reflected in its 4.4 kg weight. Designed specifically to provide excellent balance while shooting, it doesn't become front-heavy when equipped with lens, battery, and wireless receiver. Camera work is comfortable because the AJ-HDX400 maintains a natural, horizontal position when held on the shoulder or lifted by the handle. The body height is also minimized to give the operator a clear view front and rear.

Designed for Ease of Operation

The position, function, and shape of all switches, dials and terminals have been designed in response to feedback from ENG professionals to allow quick operation and prevent errors for greater reliability.

- The Audio Rec level adjustment (rear, CH1/CH2) features a push lock function.
- An LCD panel with a wide viewing angle provides greater visibility for high- and low-angle shots.
- The Audio Input level adjustment (front) can be switched ON/OFF and allocated to the desired channels by menu operation. A dial can also be mounted for this purpose.
- One of the three user buttons can be isolated as a USER MAIN button for easy blind-touch operation.

New Mechanisms with Rugged Mobility

- The Easy-Slide Shoulder Pad slides up to 30mm in 10 steps. Requiring no tools, the pad can be slid with one hand, and securely locked in position.
- A new 3-point locking viewfinder mount allows precise adjustment in only forward/backward or only right/left directions.

Digital HD VTR and System Functions

Compact, Lightweight DVCPRO HD EX Recorder

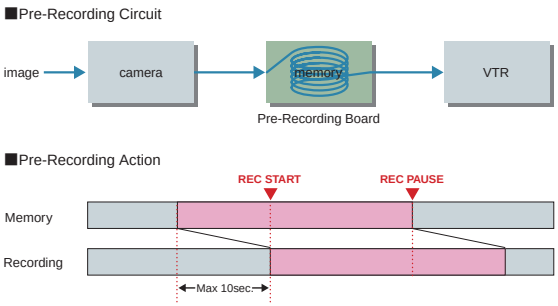
The AJ-HDX400 lets you record up to 33 minutes onto a compact M-size cassette (using the AJ-HP33EMG). A 100-Mbps bit rate and highly efficient compression ratio combine to record 1080 HD images in high-quality digital component signals. A unique recording head structure achieves the same 9,000 rpm head cylinder rotation as in the DVCPRO50 format. This results in extremely quiet operation while recording.

*DVCPRO HD EX tapes recorded with the AJ-HDX400 can be played on a DVCPRO HD VTR (AJ-HD1700/AJ-HD1200A).

Four Channel Digital Audio

The AJ-HDX400 can record full 48-kHz/16-bit digital audio on all four channels. You can freely select the audio source for each channel, choosing from mic, line, wireless receiver, and others. A 5-pin XLR jack with 2-channel compatibility is used for the front mic input. Using a stereo microphone (AJ-MC900G, sold separately) lets you record stereo with a single mic.

Pre-Recording and Other Versatile Recording Functions



- **PRE REC:** While in standby mode, you can continuously store, and subsequently record, up to 10 seconds of images and sounds. In effect, this lets you record footage of events that occur even before you press the rec start button, giving you a way to "go back" and capture moments you otherwise would have missed.
- **RETAKE:** Simply press the MODE CHECK and RET buttons at the same time to retake and overwrite the cut that was recorded immediately before.
- **INTERVAL REC:** The interval REC function is ideal for time lapse recording, such as in environmental, scientific or industrial applications calling for observation or surveillance.

HD SDI Output and SD Down-Convert Output Provided

A standard HD SDI output is provided for use in monitoring and line recording. A down-converter is also built into the AJ-HDX400 for SD (PAL) output. The aspect mode can be selected at the camera-recorder. Naturally, the monitor can also be used for live transmission.

UniSlot Wireless Receiver

For even greater mobility in outdoor shooting applications, the AJ-HDX400 can be integrated with an optional slot-in type wireless receiver.

*UniSlot is a trademark of Ikegami Tsusinki Co., Ltd.

GPS Unit

By mounting the optional AJ-GPS900G GPS unit, the AJ-HDX400 can record real-time position data (latitude, longitude, and altitude) onto the tape, conforming to UMID standards.

Other Functions

- Colour bar (switchable between EBU, ARIB, and full colour) and standard audio signal (1-kHz test tone) output
- Built-in SMPTE time code generator/reader, with time code In/Out terminal
- Simple camera remote, which connects to the optional AJ-EC3E Extension Control Unit (ECU)
- Rec Review function for easy checking of recorded results
- Multiple battery support, including Anton Bauer batteries

Side Operation and LCD Panel

Front Operation

Rear Side Connectors

Rear Connectors

Accesories

AJ-HVF20BE
2" HD EVF 16:9/4:3 switchable

AJ-MC900G
Stereo Microphone (5-pin)

AJ-MH800G
Microphone Holder

Anton/Bauer Ultra Light

AJ-GPS900G
GPS Unit

SHAN-TM700
Tripod Adapter

AJ-B75E
AC Adapter

SD Memory Card

AJ-EC3E
Extension Control Unit

Anton/Bauer Battery Charger Package

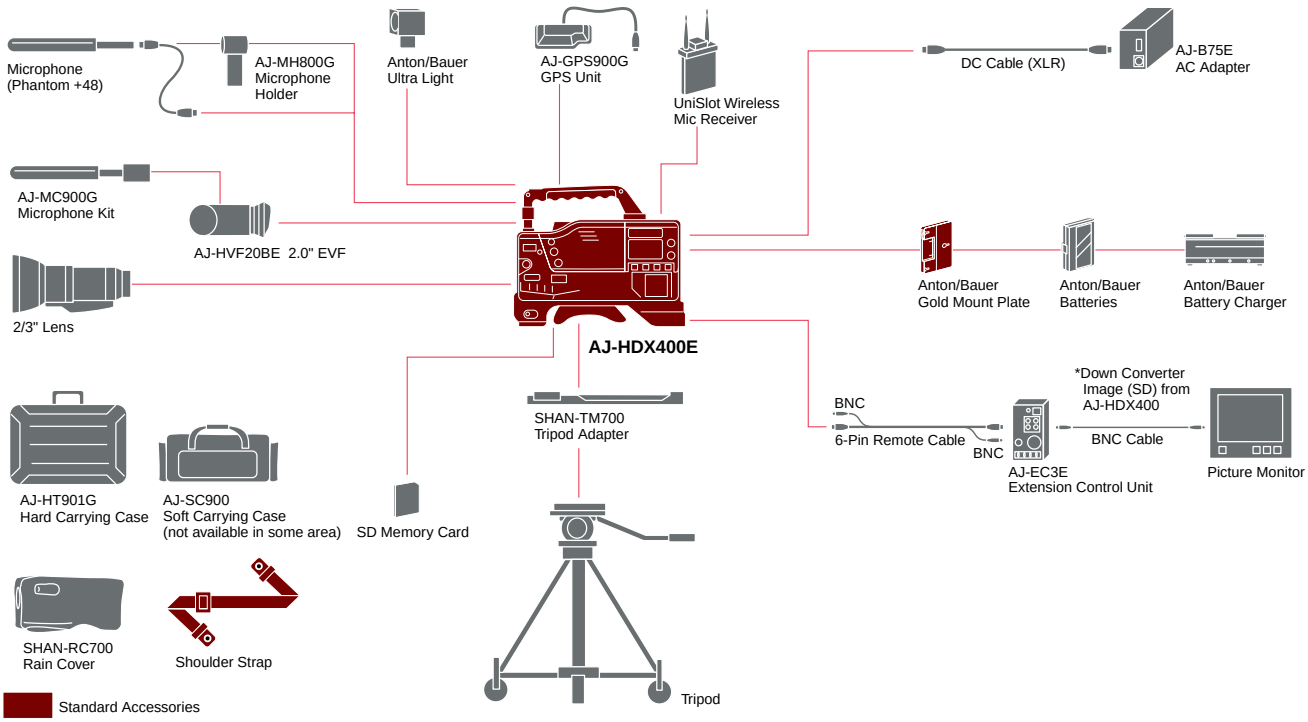
Anton/Bauer Dionic

Anton/Bauer Battery Charger

AJ-SC900
Soft Carrying Case
(Not available in some area)

AJ-HT901G
Hard Carrying Case
(Not available in some area)

SHAN-RC700
Rain Cover
(Not available in some area)



SPECIFICATIONS

General

Power Supply:	DC 12 V (11 V to 17 V)
Power Consumption:	37 W
Operating Humidity:	10 % to 85 %
Operating Temperature:	0°C to +40°C
Dimensions (W x H x D):	129 x 204 x 313 mm
Weight:	About 4.4 kg About 7.7 kg operation
Continuous Rec Time:	About 120 min. with Anton/Bauer Dionic 80/80W

Camera Section

CCD Elements:	2/3" HD Progressive CCD
Picture Elements:	Total: 1370 (H) x 744 (V) Effective: 1280 (H) x 720(V)
Optical System:	F 1.4 prism system
Optical Filters:	CC: Cross, 3200K, 4300K, 6300K ND: CLEAR, 1/4ND, 1/16ND, 1/64ND
Quantization:	12 bits
Sampling Frequency:	74 MHz
Programmable Gain:	–3/0/+3/+6/+9/+12/+15/+18/+21/+24/+27/+30 dB
Super Gain:	+30/+36/+42/+48 dB
Digital Super Gain:	+6/+10/+12/+15/+20 dB
Line Mix Gain:	+6 dB (On/Off)
Shutter Speed:	1/60, 1/120, 1/250, 1/500, 1/1000 and 1/2000 sec.
Syncro Scan Shutter:	25PsF: 1/25.2 to 1/209.4 sec. 50I: 1/50.2 to 1/209.4 sec.
Sensitivity:	F10.0 at 2000 Lux, 89.9% reflect
Minimum Illumination:	0.008 Lux at +48 dB +20 dB +6 dB Gain
Video S/N:	54 dB (typical)
Horizontal Resolution:	700 TV lines at centre
Registration Error:	Less than 0.03 % (whole zone, without lens distortion)
Lens Mount:	2/3" Bayonet type

VTR Section

Recording Fromat:	DVCPRO HD-LP (1080/25PsF, 1080/50i)
Tape:	6.35 mm wide metal tape (DVCPRO HD M cassette)
Tape Speed:	67.708 mm/s
Max Rec Time:	Approx. 33 min (using AJ-HP33EMG)
FF/REW Time:	About 1.5 min. (using AJ-HP33EMG)
Pre-Recording Time:	Max. 10 sec

Video

Sampling Frequency:	Y: 74 MHz, PB/PR: 37 MHz
Quantization:	8 bits
Compression Method:	DCT and Variable-length Coding
Compression Ratio:	6.7:1
Error Correction:	Reed Solomon Product Code
Bit Rate:	100 Mbps

Audio

Sampling Frequency:	48 kHz (sync. with video)
Quantization:	16 bits
Frequency Response:	20 Hz to 20 kHz, ±1.0 dB (reference level)
Dynamic Range:	More than 85 dB (1kHz, AWTD)
Distortion:	Within 0.1% (1 kHz, reference level)
Wow & Flutter:	Below measurable limit
Head Room:	20 dB

Input

Audio IN:	XLR-3pin x 2 (CH1/CH2), LINE/MIC/MIC +48 V switchable LINE: 0/+4 dBu, MIC: –60/–50 dBu, MIC+48V:Phantom +48 V, –50/–60 dBu,
MIC IN:	XLR-5pin x 1, Stereo, –40/–50 dBu, Phantom +48 V
Wireless IN:	25pin D-sub, –40 dBu
Genlock IN:	BNC x 1, HD/SD (V lock)
TC IN:	BNC x 1, 0.5 to 7.0 Vp-p, high impedance

Output

HD SDI OUT:	BNC x 1, 0.8Vp-p
Video OUT:	BNC x 1, SD Composite (Down Convert Out)
Audio OUT:	XLR-5pin (CH1/CH2), 0/+4 dBu
TC OUT:	BNC x 1, 2.0 Vp-p, low impedance
Phones:	Stereo mini jack x 2 (Front/Rear)

Others

DC IN:	XLR-4pin, DC12 V (DC11V to 17 V)
DC OUT:	4pin x 1, DC12V (DC11V to 17 V), 1 A
Lens:	12pin x 1
ECU:	6pin x 1 (AJ-EC3E)
EVF:	20pin x 1
GPS:	6pin x 1 (AJ-GPS900G)
Receiver*:	UniSlot Wireless Receiver

*DVCPRO HD EX tapes recorded with the AJ-HDX400 can be played on a DVCPRO HD VTR (AJ-HD1700/AJ-HD1200A).
*UniSlot is a trademark of Ikegami Tsusinki Co., Ltd.

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