

# XL H1 HD CAMCORDER

IMAGE. CONTROL. INTEGRATION.

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# XLH1

[www.canondv.com](http://www.canondv.com)

**Canon**

# THE ULTIMATE HD CAMCORDER

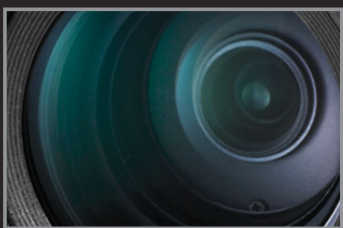
The High Definition era has arrived. Television production, movie-making, and every other video-content creation sector today demands a professional and affordable means of capturing superior-quality, widescreen moving images. The solution is Canon's XL H1, the revolutionary HD Camcorder with an unprecedented array of broadcast-quality professional features. These include uncompressed HD-SDI

(SMPTE 292M)/SD-SDI (SMPTE 259M) video output, Genlock input, and SMPTE time code input/output for multi-camera shoots. Equipped with a Genuine Canon 20x HD zoom lens, Total Image Control, selectable frame rates, and sophisticated image processing, the XL H1 is the HD camcorder engineered for broadcast ENG, documentaries, filmmaking, and commercial video production.



## THE CANON XL H1

- Genuine Canon 20x HD zoom lens with Super-Range Optical Image Stabilization
- Three native 16:9 CCD's (1440 X 1080)
- 1080 HD resolution with choice of 60i, 30F, or 24F capture
- Total Control of every image parameter
- Uncompressed HD-SDI (SMPTE 292M) and SD-SDI (SMPTE 259M) output
- Genlock input for multi-camera shoots
- SMPTE time code input and output
- Two or four-channel audio recording with independent level controls
- Canon's DIGIC DV II HD DSP chip for true HD signal image processing by 1440 x 1080, 4:2:2 color sampling



## Genuine Canon Optics

Canon is a worldwide leader in designing and manufacturing lenses for professional photography and broadcast television. The XL H1's 20x HD zoom lens with SuperRange Optical Image Stabilization leverages Canon's decades of expertise and delivers HD and SD video images of stunning clarity.

## Native 16:9 HD CCDs

The XL H1 features three 1/3" native 16:9 CCD's with 1.67 million pixels (1440 x 1080) for each primary color. The result is outstanding resolution and picture quality, highly accurate color reproduction, and a wide dynamic range with virtually no color noise.



## Total Image Control

The XL H1 allows boundless creativity with over 23 individually adjustable image controls; the perfect look is always within reach.

## Frame Rates

In today's production world, flexibility has never been more important. The XL H1 is designed to meet the demands of even the most diverse production assignments. Capture and output video in 60i, 30F, or 24F. In conjunction with the XL H1's Total Image Control, a wide range of "looks" can be obtained: from the clarity of ENG to the beauty of film and episodic TV. (Optional 50i, 25F frame rate upgrade available)



## Industry Standard Connection Terminals

Four BNC connectors provide: **Genlock input** to synchronize a multi-camera, live-switched production environment; **SMPTE time code input and output** to facilitate editing and other post-production processes; and uncompressed digital HD and digital SD output through **HD-SDI** (SMPTE 292M and SMPTE 259M). The 1.485 Gigabit per second output of the XL H1's HD-SDI terminal provides a raw, uncompressed HD signal with 4:2:2 color sampling.

## Console Image Control & Storage Software

Canon's optional CONSOLE software enables users to control and adjust the XL H1 from a laptop or desktop computer. These controls include waveform and vectorscope monitor displays and the ability to record XL H1 video directly to a computer's hard drive.





# GENUINE CANON OPTICS

The XL H1's high-performance 20x HD zoom lens leverages Canon's decades of optical expertise. Featuring Canon's XL lens mount, the XL H1's 20x HD lens provides a range from 38.9mm\* to 778mm, and delivers the ultimate in clarity and image quality. Along with Canon's Fluorite lens technology, this lens produces images with outstanding resolution, contrast, color reproduction, and minimal chromatic aberration. The lens incorporates Canon's SR

\* (equivalent to 35mm photography, 16:9 aspect ratio)

## SuperRange Optical Image Stabilization

The Canon 20x HD lens features a gyro sensor that detects motion and continuously adjusts a Vari-Angle Prism (VAP) to eliminate jitter and shake. Canon's SuperRange Optical Image Stabilization technology then re-examines the image after it has been received by the CCD, and sends additional information to the VAP that further refines its movements, thereby enhancing the performance of the stabilizer. As a result, camera shake is corrected, even when handheld at long focal lengths or when the camera is in motion.

## Lens Presets

Program the Canon 20x HD lens to memorize any given focus or zoom point and return to that point with the touch of a button.

## Interchangeable Lenses

Featuring Canon's XL lens mount, the XL H1 can be fitted with a wide array of optional lenses. Canon's EF Adapter XL enables users to attach many of Canon's EF photographic lenses to achieve specialized image capture for telephoto and other applications.

## Zoom Control and Speed

The XL H1's zoom control can be operated from its lens grip, carrying handle (for low-angle shots), lens zoom ring, wireless controller, or optional wired controller. Zoom-speed operation can be variable (pressure-sensitive) or constant (16 separate speed levels).

multi-coating for minimizing ghosting and veiling of the image. Canon's HD auto-focus algorithm delivers the accuracy users need. And two built-in Neutral Density (ND) filters provide added image control. The 1/6 ND setting reduces exposure by two stops; the 1/32 ND setting reduces exposure by five stops. These provide controls for bright, sunlit exteriors or depth of field for cinematic look. A focus distance readout in the viewfinder assists in setting manual focus.



## DIGIC DV II

Canon's exclusive next-generation DiG!C DV II HD Digital Signal Processing chip processes the HD signal at 1440 x 1080 with 4:2:2 color sampling. XL H1 has the ability, through dual processors, to simultaneously record video and still images. Digital still images can be recorded in either digital color space or video color space.



## Two Built-In Digital Still Cameras

In addition to the capture and recording of motion video, the XL H1 can also capture digital still images and store them on a Memory Card. Still images can be captured at full HD (1920 x 1080) resolution in either video color space or digital camera color space. Still images captured in video color space also include time code and camera set-up metadata. Still images captured in digital still color space include EXIF metadata. Also, as in conventional still cameras, the XL H1 includes: Auto exposure bracketing, selectable metering modes, continuous shooting and the use of select optional EOS flashes.



## Frame Overlays

The XL H1's 16:9 color LCD viewfinder includes aspect guides for industry-standard picture formats, including: 4:3, 13:9, 14:9, 1.66:1, 1.75:1, 1.85:1, and 2.35:1. Safe Area Indicators can also be superimposed to show 80 percent and 90 percent safe-title and picture-safe areas. Additional viewfinder framing overlays include a Center Mark crosshair and a Level Mark.

# TOTAL IMAGE CONTROL

Creating the perfect look requires total control over the image. The XL H1 provides Total Image Control of more than 23 variables, all independently adjustable.

- **Gain Settings**

-3dB, Auto, 0dB, +3dB, +6dB, +12dB, and +18dB

- **White Balance**

The XL H1's electronic white balance process calibrates the picture for accurate color display in different lighting conditions (i.e., sunlight versus indoor incandescent). White balance modes include:

- Auto (128 segment metering TTL)
- Indoor (3200° K, 128-segment metering TTL)
- Outdoor (5600° K, 128-segment metering TTL)
- Manual Select (set and save two white-balance presets)
- Color Temperature Mode (color temperature adjustable in 100°K increments from 2,800°K to 12,000°K)

- **Gamma (NORMAL, CINE 1, and CINE2)**

The NORMAL setting is used when images are to be viewed on a TV monitor. If CINE1 is selected, the resulting quality and grayscale resemble those of a movie film. This is a gamma adjustment for creating images on TV that appear like movies. The CINE2 setting is a gamma adjustment for images that are to be transferred to film.

- **Knee (AUTO, HIGH, MIDDLE, LOW)**

Adjusts the dynamic range (knee point) at the high-brightness end (highlight area) to limit overexposure when high-brightness subjects are shot. When HIGH is set, over exposure tends to occur more readily, but the scenes can be shot high-key. When LOW is set, the extent of the overexposure can be limited.

- **Black (STRETCH, MIDDLE, PRESS)**

This setting adjusts the dynamic range in the black area of the image. When STRETCH is set, the dynamic range in the black areas is expanded, emphasizing contrast in the dark area, so that the grayscale for black can be expressed. When PRESS is set, the dynamic range in the black areas is narrowed—the darkness is enhanced or deepened—so the grayscale for black is reduced.

- **Master Pedestal (-9 to +9)**

This adjusts the master pedestal of the black, which serves as the video reference. When the cursor is moved in the [+] direction, the dark areas of the image become brighter, and the contrast is reduced.

- **Setup Level (-9 to +9)**

For adjusting the black level of the image.

- **Sharpness (-9 to +9)**

Adjusts the sharpness of images.



- **Horizontal Detail Frequency (HIGH, MIDDLE, LOW)**

This adjusts the center frequency of the H detail.

- **Horizontal/Vertical Detail Balance (-9 to +9)**

This is for adjusting the horizontal/vertical percentage of detail correction.

- **Coring (-9 to +9)**

Adjusts the subtle noise components on the screen.

- **Noise Reduction 1 (OFF, HIGH, MIDDLE, LOW)**

This function is for activating noise reduction that cycles through the fields. The range of the noise reduction level can be selected.

- **Noise Reduction 2 (OFF, HIGH, MIDDLE, LOW)**

This function uses an epsilon filter that activates noise reduction in field units. By switching from LOW to HIGH, the entire screen appears with a smooth and soft presentation. This results in an effect similar to that of applying the skin detail function over the whole picture.

- **Color Matrix (NORMAL, CINE 1, and CINE2)**

This adjusts the color during shooting. The NORMAL setting is a matrix based on the assumption that images will be viewed on a TV monitor. If CINE1 is selected, the resulting quality and grayscale resemble those of a movie film. This is a matrix for creating images on TV that appear like movies. The CINE2 setting is a matrix that is for images being transferred to film.

- **Color Gain (-9 to +9)**

Adjusts the coloring of images.

- **Color Phase (-9 to +9)**

Used for adjusting the hue of the images.

- **Master Red Gain (-9 to +9)**

When the cursor is moved in the [+] direction, White Balance shifts toward red; when moved in the [-] direction, it shifts toward cyan.

- **Master Blue Gain (-9 to +9)**

When the cursor is moved in the [+] direction, White Balance shifts toward blue; when it is moved in the [-] direction, it shifts toward yellow.

- **Master Green Gain (-9 to +9)**

When the cursor is moved in the [+] direction, White Balance shifts toward green; when moved in the [-] direction, it shifts toward magenta.

- **Six Color Matrixes (-9 to +9 each)**

R-G: This adjusts the color tint without affecting B (blue).

R-B: This function adjusts the color tint without affecting G (green).

G-R: This function adjusts the color tint without affecting B (blue).

G-B: This adjusts the color tint without affecting R (red).

B-R: Adjusts the color tint without affecting G (green).

B-G: This adjusts the color tint without affecting R (red).

# CONNECTIVITY INPUTS & OUTPUTS



## Industry Standard Connection Terminals

- HD-SDI and SD-SDI [SMPTE 259 M, ITU-R BT.656 (optional upgrade)] output. The XL H1 provides uncompressed 1.485 Gigabit output with 4:2:2 color sampling.
- Genlock input. Synchronize a multi-camera, live-switched production environment in the studio or on location.
- SMPTE Time Code Input and Output. SMPTE Time Code can be recorded along with video to facilitate editing during post-production. The XL H1 can also output Time Code to other XL H1's for multi-camera shoots. An external Time Code generator can also be used to synchronize a number of cameras or external recording devices. XL H1 Time Code settings include Drop Frame, Non-Drop Frame, Record-Run, Free-Run, and User Bit. Time Code hold function is available for freezing the time code in the EVF.

## Interface Jacks

- D-Connection Component Analog Video out, 1080/60i and 480/60i (1080/50i and 576/50i with optional upgrade),
- S-Video in/out
- Composite video in/out
- XLR Terminals (2) input
- Audio 1 in/out (Channels 1/3 and 2/4)
- Audio 2 in/out (Channels 3 and 4)
- IEEE 1394 (HDV/DV, 4-pin); HDV down-conversion available to output SD
- Stereo mini-phono jack (3.5mm) headphone terminal
- LANC Terminal





# FRAME RATES & FORMATS

The XL H1's production versatility begins with its capture formats. Frame rates and video formats include:

- 1080/60i (16:9)
- 1080/30F (16:9)
- 1080/24F (16:9)
- \*1080/50i (16:9)
- \*1080/25F (16:9)
- \*576/50i (16:9 or 4:3)
- 576/25F (16:9 or 4:3)
- 480/60i (16:9 or 4:3)
- 480 30F (16:9 or 4:3)
- 480 24F (2:3) TV mode (16:9 or 4:3)
- 480 24F (2:3:3:2) film-transfer mode (16:9 or 4:3)

\* Requires an optional upgrade available through Canon's Factory Service Center

**Note:** Actual frame rates are: 59.94, 29.97 and 23.976 fps



## Clear Scan

The recording of computer screens or other types of electronic displays can be adjusted to eliminate the appearance of black bands and "flicker." Clear Scan allows users to adjust the XL H1's shutter speed from 60.1 Hz to 203.9 Hz to avoid such effects.

## Shutter Speed

The XL H1 has over 13 different shutter speeds from 1/3 of a second to 1/15,000 of a second, including 1/48 of a second to perfectly match that of a film camera.

# PROGRAM AUTO EXPOSURE

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These modes are designed for everyday shooting situations and for special circumstances. They include:

- **TV Mode**

"TV" stands for Time Value; in this mode the XL H1 automatically sets the lens aperture for a proper exposure based on the shutter speed that has been selected.

- **AV Mode**

"AV" stands for Aperture Value; in this mode the XL H1 automatically sets the shutter speed necessary for proper exposure when the aperture has been selected.

- **Manual Mode**

This mode provides control of both the shutter speed and aperture, giving the user a viewfinder display of both selections, as well as a bar and pointer display of how the chosen combination handles the light levels as metered by the XL H1.

- **Spotlight Mode**

This mode delivers the proper exposure in situations where the subject in the center of the frame is brightly lit, but the background is dark.

- **Night Mode**

Designed for situations in which light levels fall, this mode automatically selects lower shutter speeds to deliver a proper exposure, down to 1/4 or 1/3 second, depending on the frame rate.

- **Easy Recording (Green Mode)**

A "point-and-shoot" mode automatically controls and locks shutter and aperture, focus, gain, and white balance settings.

- **Auto Mode**

Similar to Easy Recording Mode, Auto Mode allows for manually changing shutter and aperture, focus, gain, and white balance settings.

- **AE Shift**

When in Auto, TV, or AV Modes, engaging AE Shift enables the user to make adjustments in the base setting for the camcorder's AE programs.

- **AE Lock**

This holds exposure to a particular setting, preventing unplanned exposure changes with a moving subject.

# CUSTOM PRESETS

Six Custom Presets (stored in the XL H1's internal memory) lets users save Total Image Control choices for later recall. An additional 20 Custom Presets can be stored on an SD Memory Card or even be e-mailed for easy transfer to multiple XL H1s. In both Camera Mode and VCR Mode, two Custom Keys can be defined for

customized shooting; these keys can be retrieved as needed. Canon's optional Console software provides additional Image Control via a laptop or desktop computer, which can be used to adjust all of the functions of the XL H1 and then transfer them to the camcorder.

# SKIN TONE DETAIL

The XL H1 offers Skin Tone Detail to minimize imperfections such as blemishes and wrinkles. A zebra pattern in the viewfinder, which alternates with the normal picture, assists users in defining the desired area by adjusting hue, chroma, area, and Y level. Once these have been adjusted, the overall intensity may be selected (OFF, LOW, NORMAL, HIGH).



# TELEVISION NEWS MOTION PICTURES INDIE PRODUCTION NOMENCLATURE



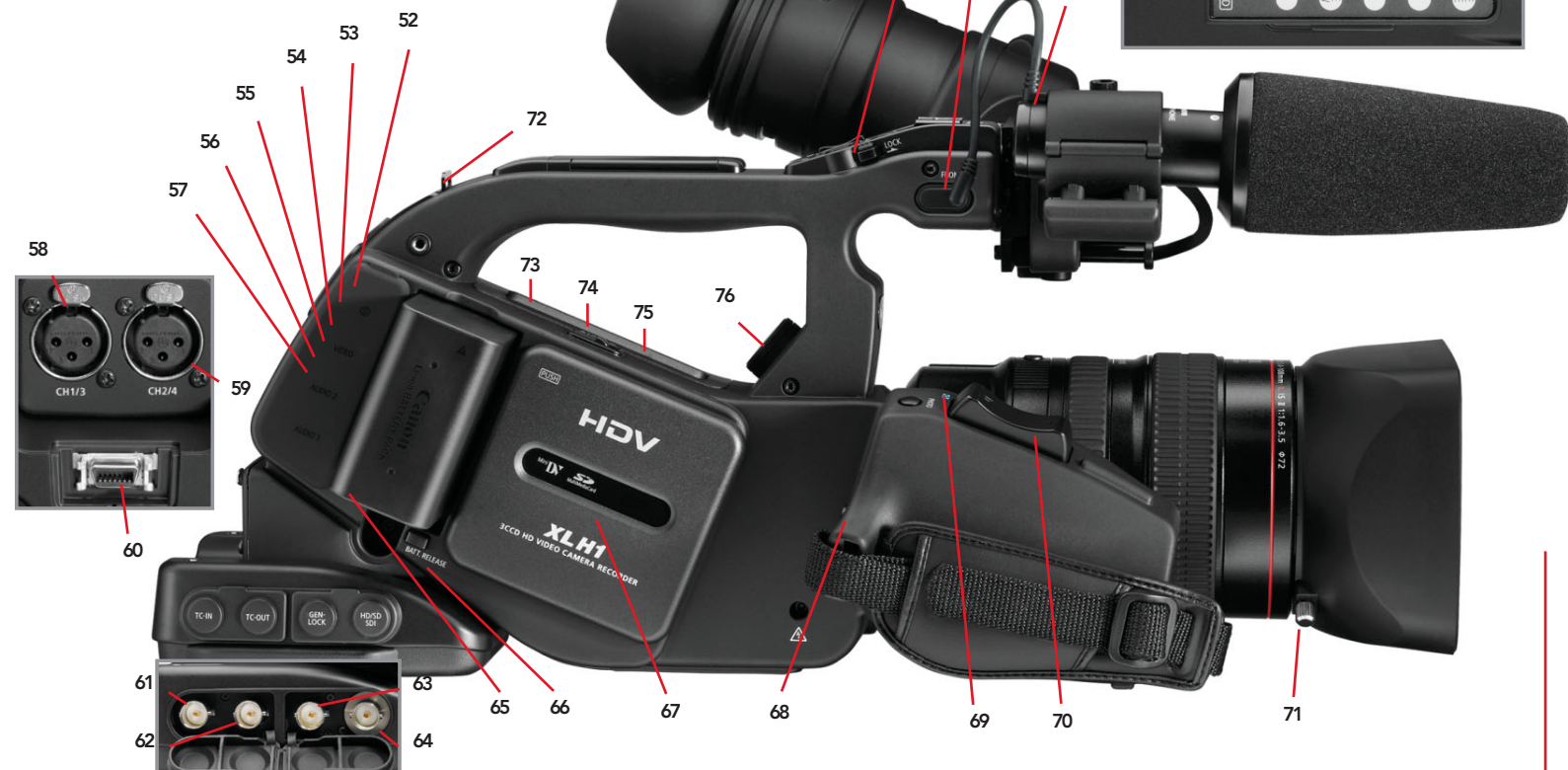
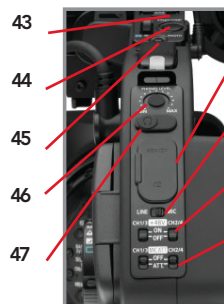
- |    |                                    |    |  |
|----|------------------------------------|----|--|
| 1  | Stereo microphone                  | 22 | POWER dial                               |
| 2  | Stereo/Mono microphone selector    | 23 | Focus selector                           |
| 3  | Viewfinder                         | 24 | AF switch/ POSITION PRESET ON/SET switch |
| 4  | Focus lever                        | 25 | EXP. LOCK button                         |
| 5  | Eye cup                            | 26 | LENS RELEASE switch                      |
| 6  | Lens hood                          | 27 | SET button                               |
| 7  | Focus ring                         | 28 | IRIS dial/SELECT dial                    |
| 8  | Zoom ring                          | 29 | GAIN dial                                |
| 9  | ND filter operating ring           | 30 | WHITE BALANCE dial                       |
| 10 | ND filter unlock button            | 31 | END SEARCH button                        |
| 11 | STABILIZER ON/OFF switch           | 32 | WHITE BALANCE button                     |
| 12 | POSITION PRESET switch             | 33 | AUDIO MONITOR button                     |
| 13 | EVF PEAKING/EVF MAGNIFYING buttons | 34 | STANDBY button                           |
| 14 | BARS/FADE ON/OFF button            | 35 | CH 3 and CH 4 AUDIO dials                |
| 15 | BARS/FADE SELECT button            | 36 | CH 1 and CH 2 AUDIO dials                |
| 16 | RECORD REVIEW button               | 37 | INPUT SELECT switch                      |
| 17 | MENU button                        | 38 | REC LEVEL switch                         |
| 18 | FRAME RATE switch                  | 39 | FRONT MIC ATT switch                     |
| 19 | MODE SELECT switch                 | 40 | REC CH SELECT switch                     |
| 20 | LIGHT button                       | 41 | INPUT SELECT switch                      |
| 21 | POWER indicator                    | 42 | REC LEVEL switch                         |



# NS COMMERCIALS MUSIC VIDEOS DOCUMENTARIES



- |    |   |    |  |
|----|---|----|--|
| 43 | Handle zoom lever                                 | 62 | TC OUT terminal                                    |
| 44 | Handle START/STOP control                         | 63 | HD/SDI terminal                                    |
| 45 | Handle PHOTO button                               | 64 | GEN. LOCK terminal                                 |
| 46 | PHONES LEVEL dial                                 | 65 | Battery pack                                       |
| 47 | phones terminal                                   | 66 | BATTERY RELEASE button                             |
| 48 | HDV indicator, HDV/DV IN/OUT terminal, L terminal | 67 | Videocassette compartment                          |
| 49 | LINE/MIC switch                                   | 68 | START/STOP button and Focus & Zoom preset controls |
| 50 | +48V switch                                       | 69 | PHOTO button                                       |
| 51 | MIC ATT switch                                    | 70 | Grip zoom lever                                    |
| 52 | S-VIDEO terminal                                  | 71 | Lens hood locking screw                            |
| 53 | VIDEO terminal (BNC)                              | 72 | Screw hole for adapter holder                      |
| 54 | RCA/BNC selector                                  | 73 | CUSTOM PRESET ON/OFF and SELECT                    |
| 55 | VIDEO terminal (RCA)                              | 74 | CUSTOM KEYS 1/2                                    |
| 56 | AUDIO 2 terminals (RCA)                           | 75 | EVF DISPLAY button                                 |
| 57 | AUDIO 1 terminals (RCA)                           | 76 | AE SHIFT dial                                      |
| 58 | XLR input terminals CH 1/3                        | 77 | LOCK lever   |
| 59 | XLR input terminals CH 2/4                        | 78 | FRONT MIC terminals                                |
| 60 | COMPONENT OUT terminal                            | 79 | Microphone cable                                   |
| 61 | TC IN terminal                                    | 80 | Videocassette record/play controls                 |



# COMBINATION EVF/LCD VIEWFINDER

XL H1 is equipped with a 2.4" combination EVF/LCD viewfinder. This design allows precise viewing and LCD for distance viewing.

## Zebra Pattern

An adjustable zebra pattern is provided from 70 to 100 IRE

## Black and White Mode

The XL H1 viewfinder may be switched between color and black & white to match a user's personal preference.

## EVF Displays

The XL H1 has the ability of 4 selectable levels of shooting data, including image only, no data. This feature allows the camera operator to concentrate on the image without being distracted by information overlay.

## Indication Lights

A warning illuminates to indicate non-standard shutter, gain, and status of record/pause.

## Focusing Aides

Accurate focus is critical to HD. The XL H1 has 2 built-in focusing aides which are peaking and magnifying. Peaking overlays an outline around the subject when it is in focus. Magnifying is a 2x enlargement of the central portion of the screen

## CUSTOM KEYS

### Color Bars

The XL H1 provides industry standard SMPTE color bars for accurate monitor calibration.

### 1kHz Reference Tone

A 1kHz reference tone (-12dB or -20dB) can be selected for recording with the color bars.

## AUDIO

In DV mode, the XL H1 provides the choice to record 16-bit (48 KHz) or 12-bit (32 KHz) audio. Select from locked or unlocked.



Four individual audio-level controls in the XL H1's audio-settings panel provide full control over the sound as it is recorded. And in addition to its front mic terminal, two rear-mounted XLR inputs are mic/line-level selectable and can provide Phantom Power (+48dB). For four-channel XLR audio input, Canon offers the optional MA-300 Microphone Adapter, with two additional XLR connectors. Four RCA audio input/output terminals on the XL H1's rear connector bay provide additional flexibility, and a stereo mini-jack is also included for audio monitoring.





# CANON CONSOLE SOFTWARE

Canon Console is an advanced next-generation software product developed to address the creative needs of XL H1 users. Combining traditional aspects of a camera control unit or motion-picture-style "video village," Console can be accessed from a laptop or desktop computer. Whether it's changing basic camera settings such as f-stops or white balance, or carefully "painting" the video images being captured for a cinematic look, Console gives users the software tools they need for full creative expression. Features of Console include live video, vector scope, and waveform monitoring of the XL H1's video signal on a laptop or desktop computer screen. Users can also capture XL H1 video direct to a computer's hard drive. Console is a great asset for artistic video capture, whether

shooting is done on location or in a studio. Console is simply and conveniently arranged in two basic environments, the REC PANEL and the PLAY PANEL. All of Console's windows are contained in one of these two environments. When footage is being captured, the REC PANEL contains all the options needed to control camera functions and "tweak" the look of the image. When footage is being played back, the PLAY PANEL is used. Both basic environments can be displayed or hidden using the first two buttons on the Console toolbar, or through pull-down menus at the top of the screen. Users can access as many or as few of Console's tools as they wish. Console is easy to operate and it allows users learn its features quickly as they experiment with them while shooting with the XL H1.



Console's REC PANEL is comprised of five optional windows. Using Console and a well-calibrated external video monitor to accurately view XL H1 video, the REC PANEL gives users total control over all aspects of the image and XL H1 camera functions. The windows include:



- **Rec Viewer**—video, a clip counter, audio meter/controls, color/monochrome setting, split-screen, and zebra levels
- **Camera Control**—remote control of most camera functions
- **Vector and Waveform Monitors**—professional features for checking color and brightness
- **Focus Assist**—zoom in electronically or go to black & white to adjust focus
- **Custom Preset**—offers multiple settings for total image control

Console's PLAY PANEL features three optional windows that allow users to review what they have recorded or to call up any existing clips or stills that may be stored on a hard drive or a memory card.

The three windows are:

- **The Play Viewer**—displays selected clip with a running counter (which does not match the camera's time code). A slider lets users alter playback speed, and audio monitor settings appear as well.
- **File Browser**—enables users to select which clip is playing in the Play Viewer window. The left side features a browser to locate the clip on the hard drive. The right side displays a key frame from the clip with date, size, length, and file type information.
- **Vector and Waveform Monitors**—for critical evaluation of recorded clips.

# ACCESSORIES

## PROFESSIONAL ACCESSORIES

### **\*20x Zoom Lens XL 5.4-108mm f/1.6-3.5 L IS**

- 20x professional L-series Fluorite zoom lens.
- Zoom and focus presets.
- Super Range Optical Image Stabilization, (2) built-in ND filters, manual focus and zoom rings, and a Push AF button.

### **\*16x Zoom Lens XL 5.5-88mm f/1.6-2.6 IS II**

- 16x zoom lens.
- Resolves 600 TV lines exceeding the DV standard of 500 TV lines for extraordinary sharpness.
- Super Range Optical Image Stabilization, (2) built-in ND filters, manual focus and zoom rings, and a Push AF button.

### **\*Wide-Angle 3x Zoom Lens XL 3.4-10.2mm f/1.8-2.2**

- This 3.4mm-10.2mm short zoom lens is ideal for interior and studio shooting as well as landscapes.

### **\*16x Manual Servo Zoom Lens XL 5.4-86.4mm f/1.6**

- Fully manual focus with markings.
- Power or manual zoom with markings.
- Auto or manual iris.
- (2) ND filters (ND2.7 and ND5)

\* For standard definition use.

### **FU-2000 Color Viewfinder Unit**

Convenient for remote viewing, the FU-2000 connects to the color viewfinder socket of the XL H1. It can also connect to the optional ZR-2000 Zoom Remote Controller for full remote viewing and control.

### **MA-300 Microphone Adapter**

The MA-300 provides two additional XLR terminals, allowing the user to connect and use unbalanced microphones on all four channels.



### **FU-1000 Monochrome CRT Viewfinder Unit**

Professional quality B&W viewfinder with a 1.5-inch CRT. (Allows power to be supplied from the CA-920 AC Adapter or optional CB-920 Car Battery Adapter; the battery adapter supplied with the FU-1000 is not required. Attach the DC Coupler directly to the XL H1, and connect it with the CA-920/CB-920.

### **TA-100 Tripod Adapter**

The TA-100 allows users to quickly mount/unmount the XL H1 on/from a tripod.

### **SBR-1000 Shooting Brace**

Using the SBR-1000 for additional support of the video camera with the neck strap is designed to increase comfort during long shoots.

### **CB-920 Car Battery Adapter**

Use a 12-24V DC negative ground battery automobile battery to power the XL H1 or to charge battery packs while driving. The CB-920 plugs into a car's cigarette lighter socket.

### **CH-910 Dual Battery Charger/Holder**

This unit can charge two battery packs consecutively. Users can also power the XL H1 by connecting it to the CH-910 with charged battery packs. When users attach two battery packs, a battery pack can be exchanged without interrupting the power supply.



### **HC-3200 System Case**

A solid, lockable case that provides safe and stylish protection for the XL H1 during transportation and storage.

### **BP-970G Battery Pack**

Provides over 35% more recording time than the BP-950G.

## KIT CONTENTS

#### **XL H1 Camcorder Body**

HD 20x Zoom XL 5.4-108mm L ISII

CA-920 Compact Power Adapter

DC-920 DC Coupler

BP-950G Battery Pack

SDC-16M Memory Card

SL-D5000 Wireless Controller

SS-1000 Shoulder Strap

#### **Adapter Holder**

DTC-1000 Component Video Cable

AC Cable

Microphone Unit

PC-A10 Skirt Adaptor

2 AA Batteries

Camcorder Dust Cap

Lens Hood

## OPTIONAL ACCESSORIES

### **FS-72U Filter Set**

Ultraviolet, neutral density, and circular polarizing filters enable creative control of challenging lighting conditions.

### **Extender XL 1.6x**

Attach this extender between a Canon XL lens and the XL H1 to boost the focal length of the lens by 1.6x.

### **EF Adapter XL**

This allows users to attach Canon EF lenses to the XL H1. The difference in size between the XL H1's 1/3-inch CCD's and 35mm film means that the effective focal length of still camera lenses is multiplied by 8.8x (4:3)/7.2x (16:9).

### **ZR-2000 Remote Zoom Controller**

When connected to the LANC terminal of a Canon camcorder, this device can be used to control recording start/stop, focusing, and 16 different zoom speeds. The ZR-2000 is especially useful when the XL H1 is mounted on a tripod and maximum stability is desired.

# SPECIFICATIONS

Power Supply:	7.4 V DC (battery pack)
Power Consumption:	7.8W (recording with autofocus, HD 20x L IS Lens mounted, HD mode)
Television System:	HD High Definition Video (HDV) 1080/60i; SD EIA standard (525 lines, 60 fields) NTSC color signal
Video Recording System:	Rotary head, helical scanning, digital component recording; HDV High Definition Video 1080i; DV Consumer digital VCR SD system.
Audio Recording System:	HDV MPEG-1 audio layer 2/MPEG-2 audio layer 2, 16-bit (48 kHz);
Transfer rate:	384 kbps (2 CH); DV PCM digital sound, 16-bit (48 kHz/2 CH) or 12 bit (32 kHz/4CH)
Image Sensor:	1/3-inch CCD x 3 (horizontal pixel shift), approx. 1,670,000 pixels. Effective pixels: HDV, approx. 1,560,000; DV 4:3, approx. 1,170,000; DV 16:9, approx. 1,560,000.
Tape Format:	Videocassettes bearing the "MiniDV" mark
Tape Speed:	HDV 18.81 mm/s (0.74 ips); DV SP: 18.81 mm/s (0.74 ips), DV LP: 12.56 mm/s (0.49 ips).
Maximum Recording Time (60 min. cassette):	HDV 60 min.; DV SP 60 min.; DV LP 90 min.
Fast-forward/Reverse Time:	Approx. 2 min. 20 sec. (60 min. cassette)
Viewfinder:	2.4 in. wide, 16:9 aspect ratio TFT color, approx. 215,000 pixels, RGB delta configuration.
Microphone:	Stereo electret condenser microphone
Frame Rate:	60i, 30F, 24F (2:3 and 2:3:3:2)
Lens Mount:	XL interchangeable lens system
Image Stabilizer:	Optical system (VAP), (20x zoom XL 38.9-778mm L IS installed)
AF System:	TTL autofocus, manual focusing with focus ring (with HD 20x L IS Lens)
White Balance:	Auto white balance, pre-set white balance (indoor, outdoor), custom white balance, or color temperature setting
Minimum Illumination:	0.5 lux (with HD 20x L IS lens, 60i/30F mode, Manual mode, _ shutter, f 1.6, Gain 18 dB) Recommended Subject Illumination: More than 100 x (60i/30F)
Input/Output Terminals (Level / Impedance):	HDV/DV Terminal Special 4-pin connector (IEEE 1394 compliant) input/output HD/SD-SDI Terminal BNC jack, output only, 0.8 Vp-p/75 ohms, unbalanced. SD- SDI 480/60i: SMPTE 259M. HD-SDI: SMPTE 292M S-Video Terminal 1 Vp-p/75 ohms (Y signal), 0.286 Vp-p/75 ohms (C signal) Video Terminal RCA jack/BNC jack, 1 Vp-p/75 ohms unbalanced Audio Out Terminals RCA jack (L, R) 2 sets, -10 dBv (47 kohm load, full-scale -12 dB)/3 kohms or less, unbalanced
Audio In Terminals	<p>FRONT MIC: ø3.5 stereo mini jack (unbalanced), ATT: 20 dB -55 dBv (Auto mode)/600 ohms</p> <p>Max: -67 dBv (Manual mode, max. volume)</p> <p>AUDIO 1, 2: RCA jack (unbalanced) -10 dBv/47 kohms</p> <p>REAR: XLR jack (pin1: shield, pin2: hot, pin3: cold), ATT: 20 dB -54 dBv (Auto mode)/600 ohms (LINE/MIC switch set to MIC) 0 dBv (Auto mode)/600 ohms (LINE/MIC switch set to LINE)</p> <p>Max 1: -66 dBv (Auto mode, REAR MIC Gain Up 12 dB)</p> <p>Max 2: -66 dBv (Manual mode, max. volume)</p> <p>Max 3: -78 dBv (Manual mode, max. volume, REAR MIC Gain Up 12 dB)</p> <p>GENLOCK Terminal BNC jack, input only, 1 Vp-p/75 ohms TC-IN Terminal BNC jack, input only, 0.5 V-1.8 Vp-p/10 kohms TC-OUT Terminal BNC jack, output only 1 Vp-p/75 ohms Headphone Jack: ø3.5mm stereo mini; -23.5 dBv (16 ohm load)/50 ohms Editing (LANC) Terminal: ø2.5mm stereo mini-jack</p>
Operating Temperature:	0-40 ° C (32 -104 ° F)
Dimensions (WxHxD):	226 x 220 x 496 mm (8.9 x 8.7 x 19.5 in.)
Weight (Camcorder body only):	2435 g (5.4 lb.)
Total Equipped Weight:	8.3 lb. (3.75kg)





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Canon U.S.A., Inc.  
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Lake Success, NY 11042

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**HDV** <sup>TM</sup>  
**HDV 1080i**

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