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Canon

XL2

3CCD DIGITAL VIDEO CAMCORDER

Intentionally
Overengineered.

3CCD DIGITAL VIDEO CAMCORDER

The **Canon XL2**. Born of the highly successful XL1. An **engineering marvel** designed for the video and film pro. An **interchangeable lens system** in a category all by itself. A superior imaging system. **Open architecture** for expandability and customization. And now, open architecture for manual and creative image control. Professional audio control. **Ready when you are**.

Mini DV

60i Frame Rate

60 fields per second, interlaced, is the standard video frame rate for North American TV viewing

30p Frame Rate

30p, or 30 progressive, is a non-interlaced format, producing video at the rate of 30 full frames per second, delivering spectacular clarity per frame.

24p Frame Rate

24p, 24 frames per second progressive (both 2:3 and 2:3:3:2 pull down), produces video with the look and motion of film. As well, the XL2 has 1/48th shutter speed in this frame rate which exactly matches a film camera.

Unsurpassed Image Quality

The Canon XL2. A powerful **20x professional fluorite lens**. Access to a wealth of **XL video lenses** and to a world of **Canon photographic lenses**. A superior **3CCD progressive scan imaging system** delivering outstanding picture quality, highly accurate color reproduction and a wide dynamic range. Selectable **frame rates** and independent **manual controls** to create your own **cine look**. Whatever you're shooting, from TV documentaries to Indies, the XL2 is ready.

16:9 Wide Aspect Ratio

As the market shifts to home theatre systems that include widescreen TVs, demand is increasing for programs that deliver the full width of film-based theatrical movies. Canon's XL2 delivers both the standard **4:3 aspect ratio** for the common TV screen plus the popular **16:9 widescreen** ratio.

Progressive Scan 3CCD System

The XL2 features a **3 CCD system** with a separate progressive scan CCD (charge-coupled device) for each primary color (red, green and blue). Each CCD contains **680,000 pixels**. Together they deliver outstanding image quality, highly accurate color reproduction and a wide dynamic range.

3CCD
Super Low Light

Interchangeable Lens System

Canon is the only company to offer a MiniDV format camcorder with interchangeable lenses. The XL2 offers you the ability to change lenses from the XL series of lenses or Canon's extensive range of photographic lenses. The Canon XL series of lenses includes a powerful **20x Zoom Lens**, **16x Automatic Lens**, **16x Manual Lens** and a **3x Wide Angle Lens**. The 20x lens (standard) features the finest optics with fluorite achieving the famous **"L-series"** designation plus **Super Range Optical Image Stabilization**, zoom and focus presets and built-in neutral density filters. **Fluorite** provides outstanding resolution, contrast and color reproduction and delivers the ultimate in clarity and image quality by reducing color aberration. Canon's superb **Optical Image Stabilization** system corrects camera shake instantly while maintaining the integrity of the image unlike some electronics image stabilizers. By incorporating a gyro sensor to detect camcorder vibration and control a vari-angle prism Canon's system continuously corrects the path of incoming light to the CCD image sensor to ensure smooth, steady video even at telephoto. **Super Range** uses feedback from the camera to accelerate and refine the movement of the prism for the most advanced image stabilization available. The **16x IS II Lens** also with Super Range Optical Image Stabilization resolves to more than **600 TV lines** to record extraordinary sharp images. For wide angle imaging, Canon offers the **3x Wide Angle Lens** with resolution in excess of 600 TV lines, while the **16x Mechanical Servo Zoom Lens** gives you the flexibility of calibrated focus and zooms. For added optical lens magnification, apply Canon's **1.6x Extender** between the camcorder and the zoom lens.

SuperRange OPTICAL IMAGE STABILIZER

3 Frame Rates

The XL2 meets the demands being made on the video production community to provide solutions under a multitude of different scenarios.

Using Canon's optional **EF Adapter** opens the XL2 to a wealth of Canon **EOS EF photographic lenses**, a tremendous super-telephoto boon to those producing wildlife, astronomy or surveillance videos.

For Your Creative Vision

The Canon XL2. Puts the control of your vision in your hands, where it belongs. You've got the power to manipulate the image just the way you want. Start with **white balance**, **shutter speeds** and **aperture control**. Create a **cine look**, with control of all the nuances, from **gamma** and **knee** to **coring** and **hue**. Adjust the **setup level**, **skin detail** and **gain**. The XL2 is designed to deliver **creative image control** when you want it, how you want it. The XL2: ready, willing and able.

Total Image Control

Master RGB Gain

The Master RGB control offers 13 steps of adjustment to each of the red, green and blue components of the video signal.

Set Up Level

For professional fine tuning of the image, the IRE setup level of the XL2 can be adjusted in 13 steps.

Master Pedestal

The Master Pedestal, which is the starting point of the gamma curve, can be adjusted in 13 steps.

Skin Detail

You can adjust hue, chroma, area, and Y level to determine the skin area and soften detail to reduce the appearance of skin imperfections. A zebra pattern identifying the skin area appears, which alternates with the normal picture.

Gain

The following video gain settings can be selected: -3, 0, +3, +6, +12, and +18 dB, as well as automatic adjustment.

XL2 Cine

Gamma

The gamma curve of the image can be adjusted independently for a "video look" (Normal) or a "film look" (Cine).

Knee (H/M/L)

The highlight area level is adjustable (High, Middle, or Low) using the XL2's knee circuit.

Black

Control the depth of black in the dark areas of an image. You can emphasize contrast in the video's dark areas (by selecting "Stretch") or deepen or enhance the dark area (by selecting "Press").

Color Matrix

You can change from a video (Normal) look to a film (Cine) look.

Vertical Detail

There are 2 settings: "Normal" for vertical detail optimized for playback on an interlaced monitor, "Low" for a progressive scan monitor like a PC.

Sharpness

Change the degree of sharpness in the image. Images that do not require a lot of detail can be softened, such as imperfections during close-ups.

Coring

Helps decrease image "noise" by reducing fine detail information that is not a major contributor to the picture detail.

Noise Reduction

Remove video noise—non-picture artifacts such as those commonly found in low-light images—without hurting image detail or creating motion artifacts.

Color Gain

Adjustable in 13 steps, from off to oversaturated, this adjustment will let you shoot in black and white, for example.

Color Phase

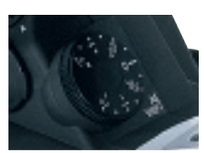
Adjust the Color Phase of the image towards red or green for exact control.

With increasing emphasis placed on delivering the cine look to video, the XL2 offers you the ability to customize your video recordings using a number of variables, each one can be adjusted independently, giving precise control over the "film-like" appearence of your video.

Exposure Control & White Balance

Programmed Auto Exposure Modes provide automated, advanced recording settings for professional results in various shooting conditions. There are a variety of AE programs available: **Auto**, **Shutter-Priority**, **Aperture-Priority**, **Full Manual**, **Spotlight**, **Low Light** and **Easy Recording**.

Using **AE Shift**, you can add or subtract a bit of exposure, making slight adjustments to the image brightness to compensate for backlighting or for scenes that are being rendered slightly overexposed. With **AE Lock**, you can hold the exposure at a particular setting, preventing unplanned exposure changes with a moving subject, for instance.



The XL2 offers you **Automatic White Balance** (including a fully automated mode, an indoor mode and an outdoor mode), and manual white balancing. The camera also gives you the option of setting and saving up to three white balance presets that can be reused for non-sequential shooting.

Intuitive Operation

Within moments of putting the XL2 to work, it's logically-designed controls will have you “at home” with its operation.

Color Viewfinder

The XL2’s color viewfinder displays 16:9 Letterbox, as well as full screen 4:3. The viewfinder can be shifted from side-to-side, as well as front to back. Best of all, the viewfinder easily converts to a fully functional 2" LCD monitor.

Zebra Pattern

Displayed in the viewfinder but not recorded, Zebra stripes can be made to appear over any area that is overexposed. This helps guide aperture and shutter speed adjustment. Settings are 80, 85, 90, 95, and 100 IRE.

Zoom Control

The XL2 features zoom controls on both the side grip as well as the carrying handle. On the side grip, choose from variable zoom (pressure controlled) or one of 16 constant zoom speeds.

Custom Keys

You can assign frequently used functions to two easily accessible buttons, allowing the XL2 to better match your shooting preferences or environment.

Custom Presets

Each of three custom presets can be assigned any one of a number of functions, accessible at the touch of a button, for faster and easier camera operation. These presets can be transferred to another XL2 using the IEEE1394 connection.

Durable Design

The XL2, designed for extensive field use, features a chassis mounted on a single durable magnesium alloy frame, providing protection from external shock. A dust gasket on the tape door offers added protection.

Maximize the Performance

The Canon XL2. Designed to bring out your professional side. Outstanding image quality. Remarkable image control. Interchangeable lenses. Selectable aspect ratio. Selectable frame rates. On-camera **XLR** and **BNC** connectors. **4 channel independent** audio control. **SMPTE time code**. An outstanding design. The list goes on. The Canon XL2 is ready for you.

Recording Options

The XL2’s **Clear Scan** feature is designed to record a computer CRT screen or similar equipment without displaying a black band or flicker on the screen. The camera can adjust shutter speeds, allowing you to perfectly match the CRT’s scan rate. The **Interval Timer** can be programmed to record at various intervals for varying amounts of time. This is time lapse motion videography. Set intervals include: 30 seconds; 1 minute; 5 minutes; 10 minutes. Set recording times include: 0.5 second; 1.0 second; 1.5 seconds; 2.0 seconds. When specific accessories compatible with the **Advanced Accessory Shoe** are attached, the XL2 can exchange data with them and supply power directly to them. These accessories include the **DM-50 Directional Microphone** as well as the **MA-300 Microphone Adapter,** which lets you connect two additional XLR connector microphones.

Audio Control

The XL2 has individual **gain controls** for each of the **4 audio channels**. Along with these controls, there are various switches to **automatic** or **manual level recording**, select **different inputs** and **attenuation**. The audio level can be monitored in the viewfinder and the side of the camcorder by the built-in **VU meters**. There is a headphone terminal with level control for monitoring the audio when recording or playback.

XLR Audio Inputs

The XL2 has **two built-in XLR connectors** on the camera body for professional and high-end audio equipment. For more creative control, Canon offers the optional **MA-300 Microphone Adapter**, with two additional XLR connectors.

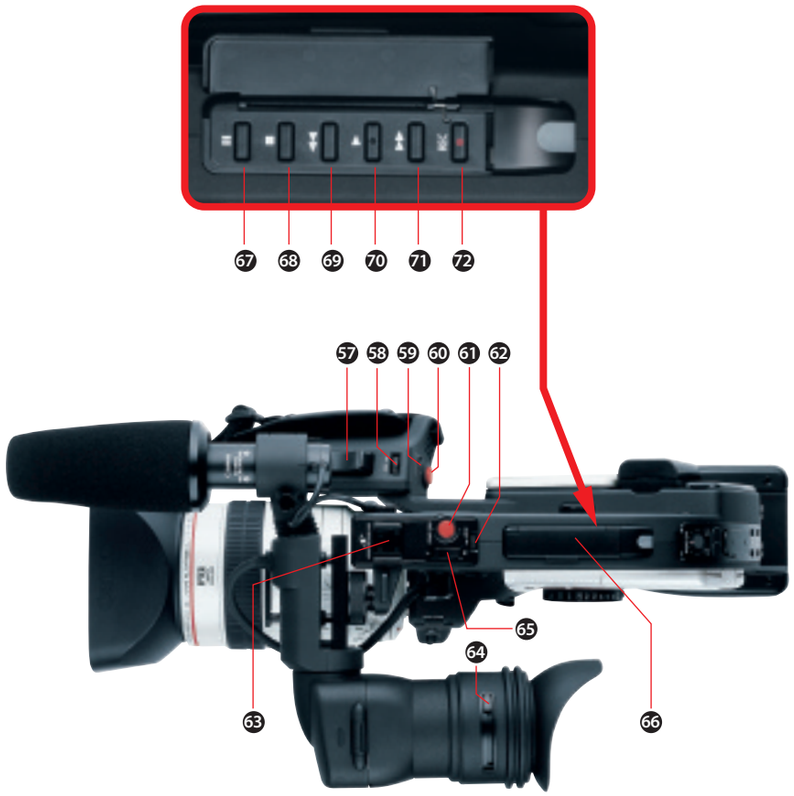
Professional Features

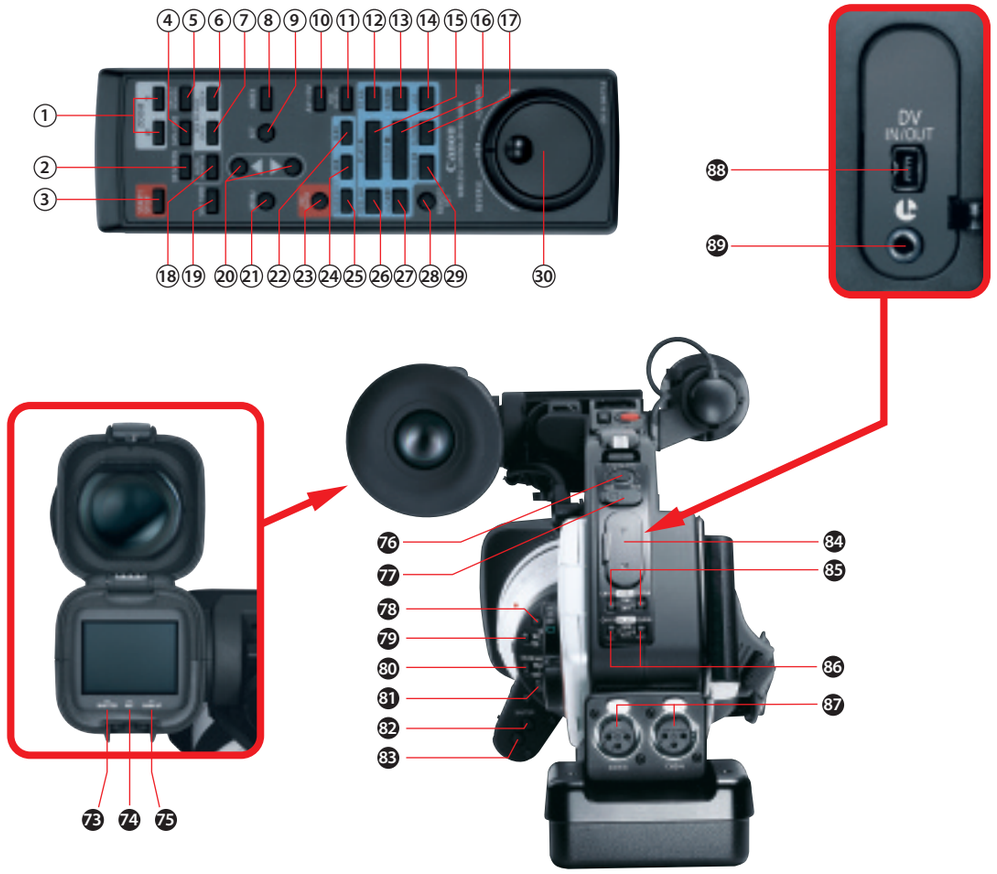
The XL2 can generate **SMPTE color bars**, and a **1KHz reference tone**. On top of that, the camera can record a **SMPTE time code** on the tape (drop, non-drop, rec run, free run, user bit). For specialized applications the date and time can be burned onto the video. The XL2 also has **BNC**, **RCA**, and **S-video** terminals.

Advanced Viewfinder Settings

The XL2’s viewfinder has **three indicators** which light up to alert you of vital camcorder settings and operations (Shutter, Rec, Gain). In addition, all viewfinder display information can be removed, providing you with a clear, unobstructed viewing area.

Nomenclature





57 Grip Zoom Lever
58 Zoom Speed Dial
59 Variable/Constant Zoom Switch
60 REC START/STOP Button
61 REC START/STOP Button
62 Lock Lever
63 Advanced Accessory Shoe
64 Dioptric Adjustment Lever
65 Handle Zoom Lever
66 Operation Panel
67 PAUSE⏸ Button
68 STOP■ Button
69 REW◄◄ Button
70 PLAY► Button
71 FF►► Button
72 REC● Button
73 SHUTTER Indicator
74 REC Indicator
75 GAIN UP Indicator
76 PHONE LEVEL Dial
77 HEADPHONES Terminal
78 REC SEARCH + Button
79 REC SEARCH –/Record Review Button
80 COLOR BARS SELECT Button
81 COLOR BARS ON/OFF Button
82 ▲SHUTTER Speed Button
83 ▼SHUTTER Speed Button
84 DV/REMOTE (LANC) Terminal Door
85 +48V Switches
86 MIC ATT. Switches
87 XLR Input Terminals
88 DV Terminal
89 REMOTE (LANC) Terminal

REMOTE CONTROL

1 ZOOM Buttons
2 ON SCREEN Button
3 START/STOP Button
4 DATA CODE Button
5 ZERO SET MEMORY Button
6 MIX BALANCE CH2/4 Button
7 MIX BALANCE CH1/3 Button
8 INDEX Button
9 SET Button
10 AV-DV Button
11 END SEARCH Button
12 FF►► Button
13 +/⏸► (Frame Advance) Button
14 x2 Button
15 PLAY► Button
16 STOP■ Button
17 SLOW⏴ Button
18 AUDIO MONITOR Button
19 SELF TIMER Button
20 ▲▼ Cursor Keys
21 MENU Button
22 ►►I SEARCH Button
23 REC PAUSE Button
24 I◄◄ SEARCH Button
25 SEARCH SELECT Button
26 REW◄◄ Button
27 –/⏸► (Frame Rewind) Button
28 REMOTE SET Button
29 PAUSE⏸ Button
30 Jog/Shuttle Dial

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Supplied Accessories

XL2 Camcorder Body • Zoom Lens 20x zoom XL 5.4-108mm L IS • Color Viewfinder • Lithium Battery (for Auto-Date) • WL-D4000 Wireless Controller • Two R03/AAA Batteries (for Wireless Controller) • Lens Cap • Lens Dust Cap • Lens Hood • Lens Soft Case • Camcorder Dust Cap • CA-920 Compact Power Adapter • AC Cable • DC-920 DC Coupler • BP-930 Battery Pack (with Terminal Cover) • SS-1000 Shoulder Strap • STV-150 Stereo Video Cable • S-150 S-Video Cable • Microphone • Adapter Holder • Instruction manual • Lens Instruction manual

Specifications

Power Supply: 7.2V DC (battery pack)
Power Consumption: 7.1W (recording with AF, 20x zoom XL 5.4-108 L IS mounted)
Television System: EIA standard (525 lines, 60 fields) NTSC color signal
Video Recording System: Two rotating heads, helical scan azimuth recording, DV System (Consumer digital VCR SD system) digital component recording
Audio Recording System: PCM digital recording: 16 bit (48 kHz/2 channels); 12 bit (32 kHz/4 channels) (synchronous 4-channel recording is possible)
Image Sensor: Size 1/3", approx. 680,000 pixels (total), Progressive Scan CCD x3 (charge-coupled device) with horizontal pixel shift
16:9 target area: approx. 460,000 pixels (962 x 480) x3 CCD, 0.289" diagonal
4:3 target area: approx. 350,000 pixels (720 x 480) x3 CCD, 0.236" diagonal
Tape Format: Video cassettes bearing the Mini DV mark
Tape Speed: SP: 0.74 ips (18.81mm/second), LP; 0.49 ips (12.56 mm/second)
Maximum Recording System: SP; 80 min., LP; 120 min.
Fast-forward/reverse Time: Approx. 2 minutes and 20 seconds (using 60-minute tape)
Viewfinder: 2.0-inch TFT color LCD; Approx. 200,000 pixels, RGB delta configuration
Microphone: Stereo electret condenser microphone
Frame Rate: 60i, 30p, 24p (2:3 & 2:3:3:2)
Lens Mount: XL interchangeable lens system
Image Stabilizer: Optical system (VAP), (20x zoom XL 5.4-108mm L IS installed)
Focusing System: TTL autofocus. Manual focusing possible (20x zoom XL 5.4-108mm L IS installed)
Minimum Object Distance: 20mm (Wide macro), 1m (entire zoom range): (20x zoom XL 5.4-108mm L IS installed)
White Balance: Auto white balance, pre-set white balance (indoor, outdoor) or custom white balance
Minimum Illumination: Approx. 5.5 lx (20x zoom XL 5.4-108mm L IS installed, auto mode, 60i frame rate, 4:3 aspect ratio, 1/60th second shutter)
Recommended Subject Illumination: More than 100 lx
Filter Diameter: 72mm (XL lens)
I/O Terminals (Level/Impedance):
DV Terminal: 4-pin connector (complies with IEEE1394); input/output switching
S-video Terminal: 4-pin mini-DIN; input/output switching 1 Vp-p/75 ohms (Y signal), 0.286 Vp-p/75 ohms (C signal)
Video Terminals: RCA pin jack; input/output switching/BNC jack; input/output switching 1 Vp-p/75 ohms unbalanced
Audio Terminal: RCA pin jack (L/R) 2 systems; input/output switching
Audio Signals: During input; Min. –10 dBv/47 kohms unbalanced
During output; Max. –10 dBv (for 47 kohm load)/3 kohm unbalanced
XLR Pin Jack (3-pin jack) 2 Systems: (input only) balanced –54 dBv (Auto)/600 ohms, –66 dBv (Auto/Gain up 12 dB), –66 dBv (Manual/Vol. Max), –78 dBv (Manual/Vol Max + Gain up 12 dB)
ATT: 20 dB
Front Microphone Input Terminal: ø3.5mm stereo mini-jack unbalanced
–55 dBv (Auto), –67 dBv (Manual/Vol Max)/600 ohms
Headphone Terminal: ø3.5 mm stereo mini-jack
–23.5 dBv (with 16 ohm load at maximum volume)/50 ohms
Editing (LANC) Terminal: ø2.5 mm stereo mini-jack
Accessory Shoe: Supports MA-300 Microphone Adapter
Operating Temperature: 32–104˚ F (0–40˚C)
Dimensions (W x H x D): 8.9 x 8.7 x 19.5 in. (225 x 220 x 496mm)
Weight (Camcorder body only): 5.3 lbs. (2410g)
Total Equipped Weight: 7.8 lbs. (3545g)