Mini **DV**

Canon

XL2

3CCD DIGITAL VIDEO CAMCORDER

Intentionally
Overengineered.

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**

50i Frame Rate

50 fields per second, interlaced, is the standard video frame rate for PAL system TV viewing.

25p Frame Rate

25p, or 25 progressive, is a non-interlaced format, producing video at the rate of 25 frames per second, delivering spectacular clarity per frame.

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 800,000 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

SuperRange
OPTICAL
IMAGE
STABILIZER

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.

2 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.

Film Grain
To simulate the graininess normally experienced when shooting on film, you can use the XL2's film grain effect.

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.

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.
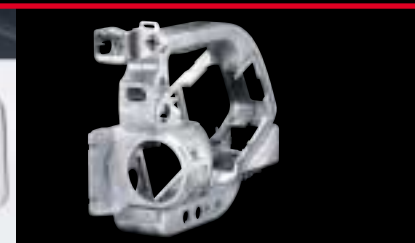
Custom Keys

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.

Intuitive Operation

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

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.

Maximize the Performance

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 VL-3 Video Light, VFL-1 Video Flash Light (only light is functional on the XL2), DM-50 Directional Microphone, as well as the MA-300 Microphone Adapter that 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 (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.
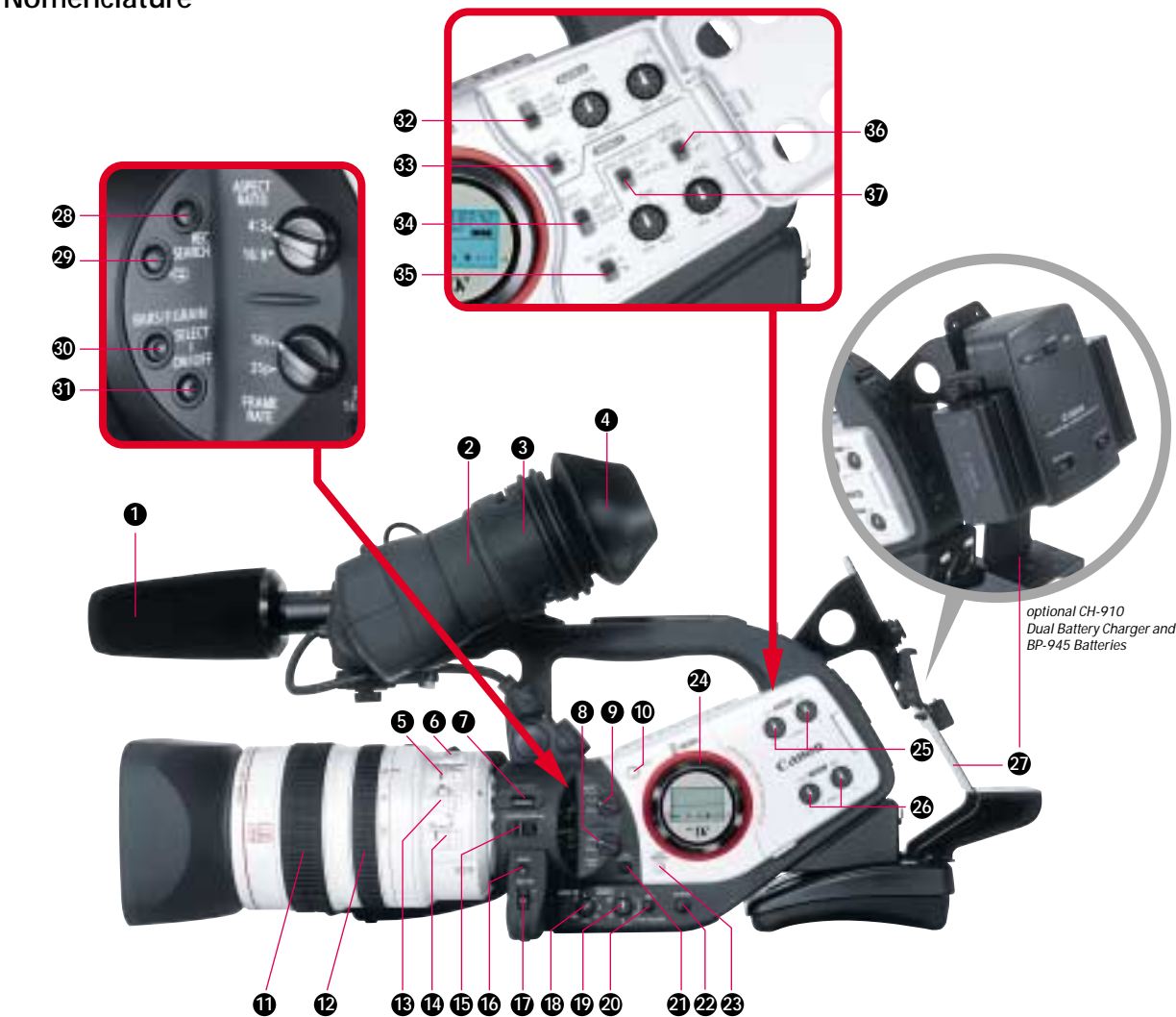
Advanced Viewfinder Settings

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

optional CH-910
Dual Battery Charger and
BP-945 Batteries

1 Stereo Microphone
2 Viewfinder Focusing Ring
3 Viewfinder
4 Eye Cup
5 Position Preset Switch
6 STABILIZER Switch
7 EXP. LOCK Button
8 FRAME RATE Selector Switch
9 ASPECT RATIO Selector Switch
10 LIGHT

11 Focusing Ring
12 Zooming Ring
13 ND Filter Switch
14 Auto/Manual Focus Switch
15 LENS RELEASE Switch
16 MENU Button
17 IRIS SELECT Dial
18 GAIN Dial
19 WHITE BALANCE Selector Knob
20 WHITE BALANCE Set Button

21 END SEARCH Button
22 STANDBY Button
23 AUDIO MONITOR Button
24 POWER Dial
25 CH3/CH4 LEVEL Dial (AUDIO2)
26 CH1/CH2 LEVEL Dial (AUDIO1)
27 Adapter Holder
28 REC SEARCH + Button
29 REC SEARCH –/Record Review Button
**30** BARS/F.GRAIN SELECT Button
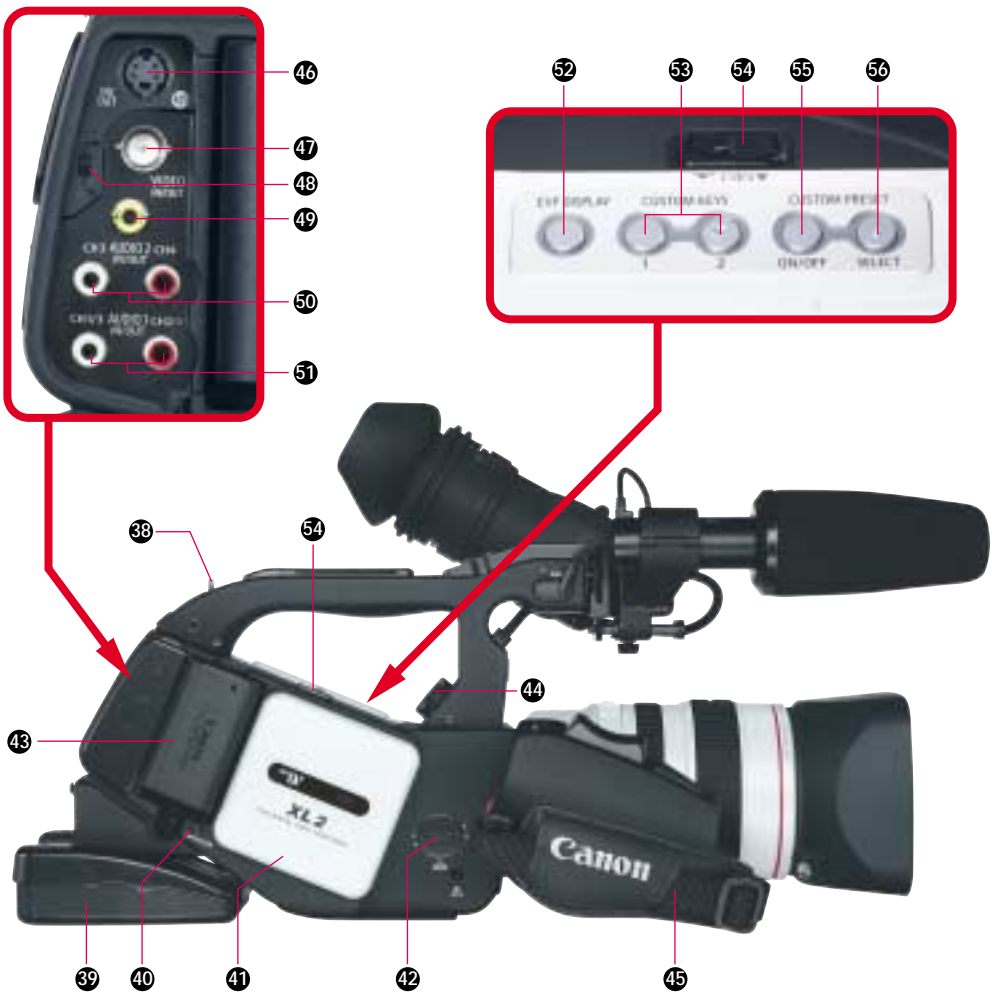
31 BARS/F.GRAIN ON/OFF Button
32 INPUT SELECT (CH3, CH4) Switch
33 REC LEVEL (CH3, CH4) Switch
34 INPUT SELECT (CH1, CH2) Switch
35 REC LEVEL (CH1, CH2) Switch
36 FRONT MIC ATT. Switch
37 REC CH SELECT Switch
38 Strap Mount
39 Shoulder Pad
40 BATT. RELEASE Button

41 Cassette Compartment
42 Backup Battery Compartment
43 Main Battery
44 AE SHIFT Dial
45 Grip Belt
46 S-video Terminal
47 Video Terminal (BNC)
48 RCA/BNC Selector
49 Video Terminal (RCA)
50 AUDIO 2 RCA Terminal

51 AUDIO 1 RCA Terminal
52 EVF DISPLAY Button
53 CUSTOM KEYS
54 EJECT Switch
55 CUSTOM PRESET ON/OFF Button
**56** CUSTOM PRESET SELECT Button

Nomenclature
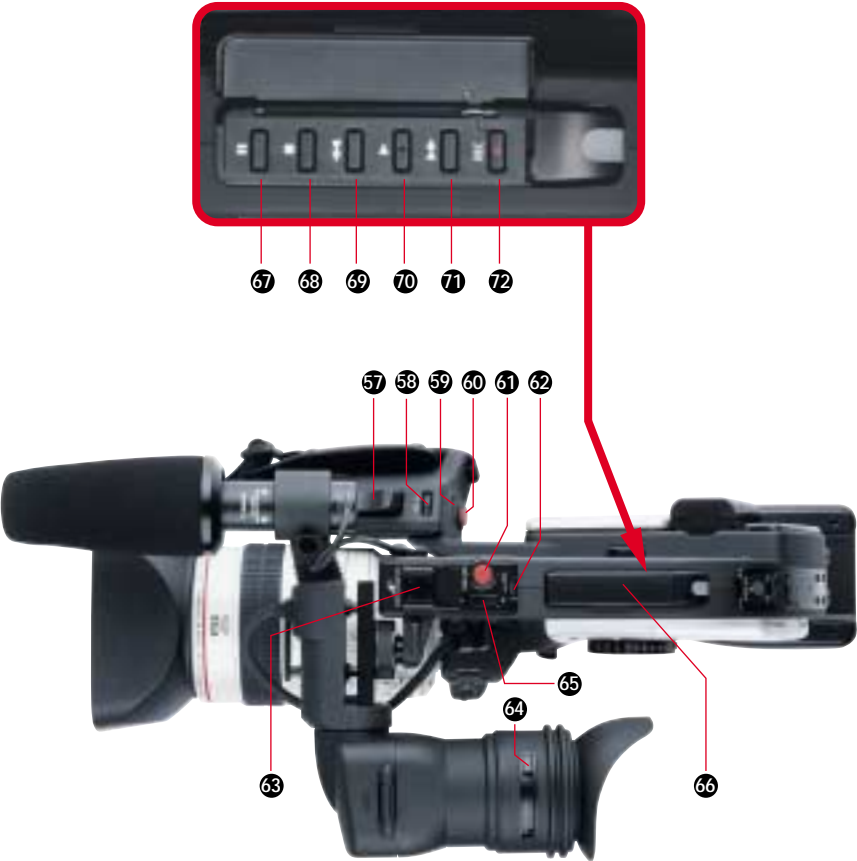
57 Grip Zoom Lever
58 Zoom Speed Dial
59 Variable/Constant Zoom Switch
60 REC START/STOP Button
61 REC START/STOP Button
62 Lock Lever
63 Advanced Accessory Shoe
64 Dioptric Adjustment Lever
65 Handle Zoom Lever
66 Operation Panel
67 PAUSE❙❙ Button
68 STOP■ Button

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 BARS/F.GRAIN SELECT Button

81 BARS/F.GRAIN ON/OFF
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
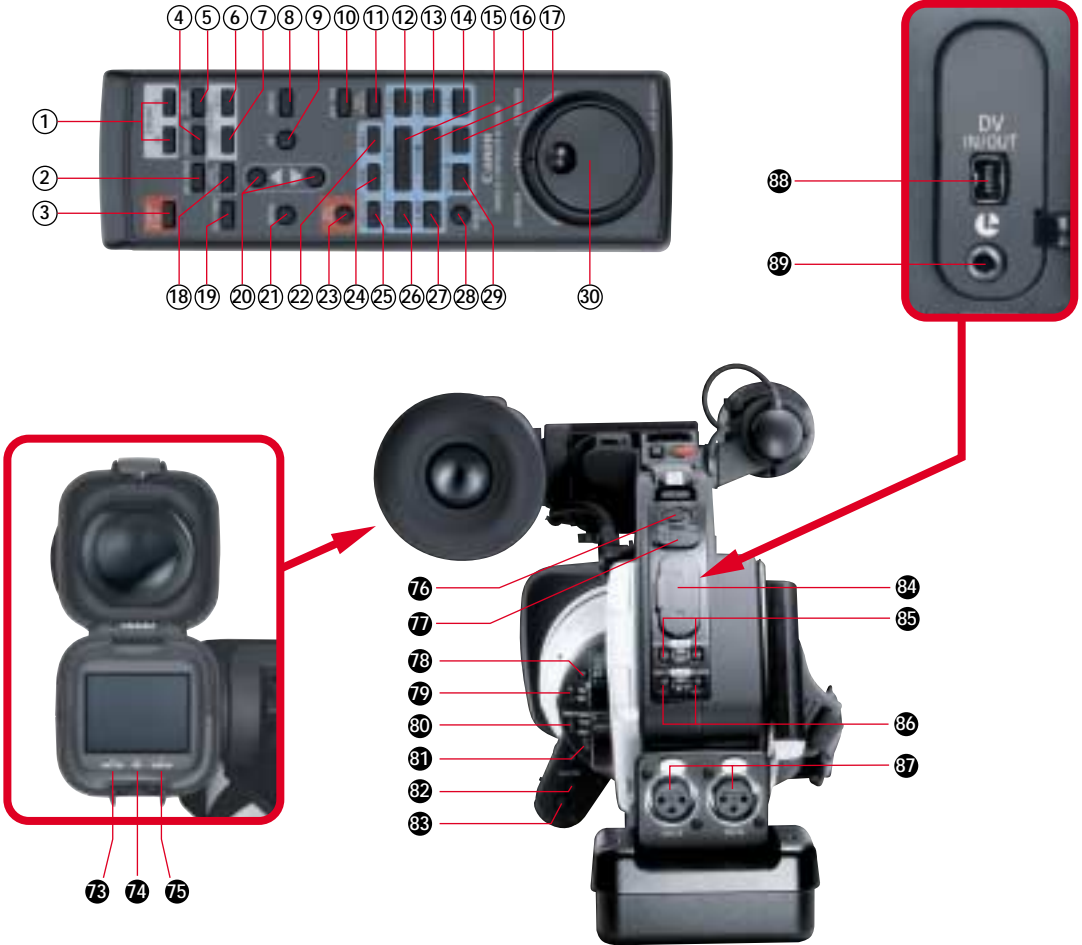
REMOTE CONTROL
1 ZOOM Buttons
2 ON SCREEN Button
3 START/STOP Button
4 DATA CODE Button
5 ZERO SET MEMORY Button
6 MIX BALANCE CH2/4 Button
7 MIX BALANCE CH1/3 Button
8 INDEX Button
9 SET Button
10 AV-DV Button

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 ▶▶❙ SEARCH Button
23 REC PAUSE Button
24 ❙◀◀ SEARCH Button
25 SEARCH SELECT Button
26 REW◀◀ Button
27 –/❙❙▶ (Frame Rewind) Button
28 REMOTE SET Button
29 PAUSE❙❙ Button
30 Jog/Shuttle Dial

Optional Accessories

16x Zoom Lens XL 5.5-88mm f/1.6-2.6 IS II
Includes features like a variable angle prism for image stabilization, ND filter, manual focus, zoom rings and a push AF function.

Wide-Angle 3x Zoom Lens XL 3.4-10.2mm f/1.8-2.2
High resolution exceeding 600 TV lines. It has an ND filter, manual focus and zoom ring.

16x Manual Servo Zoom Lens XL 5.4-86.4mm
This manual lens gives you the flexibility of calibrated power zoom, power iris, 2 built-in ND filters and calibrated manual focus.

Extender XL 1.6 x
Increases the focal length of the XL2 lens by 1.6x.

EF Lenses
Select from over 50 high-quality Canon EF Lenses, ranging from Fisheye to Super Telephoto to a choice of versatile zoom models.

EF Adapter XL
Allows the attachment of over 50 Canon photographic EF lenses to the XL2. (Magnification: 7.7x in 16:9, 9.4x in 4:3)

FS-72U Filter Set
Includes Neutral Density (ND 8), Polarizing and Ultraviolet filters.

DM-50 Directional Stereo Microphone
The DM-50 is a directional stereo mic which connects to the XL2's Advanced Accessory Shoe, no cables or additional power is required.

MA-300 Microphone Adapter
Providing power and audio connection without any wires.

FU-1000 Monochrome CRT Viewfinder Unit
Professional style 1.5 inch monochrome CRT.

TA-100 Tripod Adapter
TA-100 Tripod Adapter allows you to quickly mount/dismount the XL2 on or from a tripod.

VFL-1 Video Flash Light
Attaches to the Advanced Accessory Shoe for cable-free operation. The flash feature is not compatible with the XL2.

VL-3 Video Light
Ideal for "filling" in shadows on bright days or providing extra brightness in low-light situations.

VL-10LI Battery Video Light
With its 10-watt illumination, improves lighting and image quality whether you are shooting indoors or out.

ZR-1000 Zoom Remote Controller
Controls Start/Stop, Focus, On-Screen, Record Search (+/–). Variable and Single Speed Zoom.
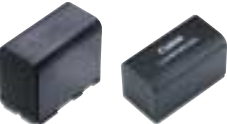
Lithium Ion Battery Packs BP-945/BP-930
These high capacity lithium ion battery packs allow the longest running time available.

CH-910 Dual Battery Charger
It holds two lithium ion batteries. Can charge them consecutively or supply power to the camcorder.

CB-920 Car Battery Adapter
Power your camcorder using the DC-920 or changing lithium-ion battery packs from a car's cigarette lighter.

System Case HC-3200
A solid, lockable case that allows you to protect the contents of the kit.

Specifications

System

Video Recording System	2 rotary heads, helical scanning DV system (consumer digital VCR SD system), digital component recording
Audio Recording System	PCM digital sound: 16 bit (48 kHz/2 ch); 12 bit (32 kHz/4 ch)
Television System	CCIR standard (625 lines, 50 fields) PAL colour signal
Image Sensor	1/3-inch CCD x 3 (horizontal pixel shift), approx. 800,000 pixels Effective pixels: 4:3 approx. 410,000 pixels 16:9 approx. 550,000 pixels
Tape Format	Videocassettes bearing the "MiniDV" mark
Tape Speed	SP: 18.83 mm/s, LP: 12.57 mm/s
Maximum Recording Time (80 min. cassette)	SP: 80 min., LP: 120 min.
Fast Forward/Rewind Time	Approx. 2 min. 20 sec. (with a 60 min. cassette)
Viewfinder	2-inch. TFT colour, approx. 200,000 pixels, RGB delta configuration
Microphone	Stereo electret condenser microphone
Lens mount	XL interchangeable mount system
AF System	TTL autofocus, manual focusing with focus ring (with 20x L IS lens)
White Balance	Auto white balance, pre-set white balance (indoor, outdoor) or custom white balance
Minimum Illumination	0.8 lx (with 20x L IS lens, 50i mode, Manual mode, 1/6 shutter, F1.6, Gain 18 dB)
Recommended Illumination	More than 100 lx

Input/Output Terminals

S-video Terminal	1 Vp-p/75 ohms (Y signal), 0.3 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	FRONT MIC: ø3.5 stereo mini jack (unbalanced), ATT: 20 dB -55 dBv (Auto mode)/600 ohms Max: -67 dBv (Manual mode, max. volume) AUDIO 1, 2: RCA jack (unbalanced) -10 dBv/47 kohms REAR: XLR jack (pin1: shield, pin2: hot, pin3: cold), ATT: 20 dB -54 dBv (Auto mode)/600 ohms Max 1: -66 dBv (Auto mode, REAR MIC Gain Up 12 dB) Max 2: -66 dBv (Manual mode, max. volume) Max 3: -78 dBv (Manual mode, max. volume, REAR MIC Gain Up 12 dB)
DV Terminal	Special 4-pin connector (IEEE1394 compliant)
Headphone Terminal	ø3.5 mm stereo mini-jack -23.5 dBv (16 ohm load)/50 ohms
LANC Terminal	ø2.5 mm stereo mini-jack

Power/Others

Power supply (rated)	7.2 V DC
Power consumption	7.1 W (recording with autofocus, 20x L IS Lens mounted)
Operating temperature	0 – 40 ˚C
Dimensions (W x H x D)	225 x 220 x 496 mm
Weight (camcorder body only)	2410 g
(fully loaded)	3545 g