Canon

EOS C500

4K

CINEMA EOS

LEAVE NO STORY UNTOLD

EAVE NO STORY UNTOLD
GO WHEREVER THE STORY TAKES YOU

The EOS C500 4K Digital Cinema Camera is a camera with few competitors. It capitalizes on the superb onomic design and incorporates the same Canon-developed Super 35mm 4K CMOS image sensor as the S C300, retaining identical capabilities in terms of in-camera recording of HD video onto Compact Flash (CF) ds. But it is there that the similarities end.

The EOS C500 offers significantly more contemporary high-resolution motion imaging choices. The camera ports uncompressed 2K or HD 4:4:4 RGB video components – with an additional choice of 12-bit or 10-bit th for each – at up to 60 progressive fps, which are externally recorded. By employing the YCbCr component-eo set at a 10-bit depth, the EOS C500 can extend that picture capture rate up to 120 fps.

In addition, anticipating the inexorable march of 4K production, this same camera can be switched to a 4K ging mode that is user-selectable between the cinema-centric 4096x2160 format, or the television-centric 0x2160 UHDTV format (sometimes called QuadHD). In this imaging mode, the camera delivers a 4K RAW

"How much can I push the envelope with the C500? I really had nothing that stopped me in the most dram way I could."

Jeff Cronenweth, ASC / Director of Photography for "*Man & Beast*"

Above: Behind the scenes on the set of the 4K short film "Man & Beast."

ion picture production and HD television production arenas, as well as in the steadily emerging 4K motion imaging tors. With that in mind, Canon launched a large Cinema EOS project that encompassed a parallel development of four ema EOS cameras and a family of Cinema Prime and Zoom lenses. The latter have been carefully designed to meet the optical performance expectations of 4K imaging. This unique strategy ensures the exceptional creation of HD and 2K ges, as well as the production of a flexible 4K lens-camera motion imaging system without peer.

PL camera mount is recognized as the industry standard for large-format cinematography – for both motion picture film digital cameras. Cinema Zoom lenses are all available in PL mount and, accordingly, provide the most contemporary cal performance to all Super 35mm digital and film cameras, as well as the Canon Cinema EOS C500 and C300 cameras.

Canon also recognized the existence of a huge global constituency of still-image photographers using the extensive ge of Canon EF lenses, with many aspiring to transition to digital motion imaging. Therefore, Canon chose to make the ema Zoom lenses available with the alternative EF mount, and has also developed a range of EF mount 4K Cinema ne lenses. In concert with this strategy, the EOS C500 camera is also available in PL mount or EF mount.

non Cinema Lenses

on offers a complete line of cinema lenses, including Zooms, mpact Zooms and Primes. All of these lenses fulfill contemporary production standards, further enhancing the performance of any maging system. And each lens features an 11-blade aperture hragm to help ensure beautiful bokeh. Markings on both sides e lens barrel simplify focus reading and aperture setting from nd or on either side of the camera, while torque of the control s maintains proper resistance. To enable film crews to change cs quickly and without adjusting the rig setup, each category of ema Lenses shares a uniform front diameter, rotation angle for rational controls, and gear positions.

non Cinema Zoom and mpact Zoom Lenses

on Cinema Zoom and Compact Zoom Lenses use new optical s materials, new optical coatings and powerful new design niques to offer extraordinary 4K optical performance. All Zoom ses feature large aspherical lens elements that help achieve p, consistent images, and a geared inner-focusing mechanism s minimize focus-induced changes in the angle-of-view, greatly cing focus breathing. All of these lenses are available with stry-standard PL-mount or Canon's EF-mount.

wide-angle Cinema Zoom CN-E14.5–60mm T2.6 L S/SP esents a masterpiece of contemporary optical design, with cal range that was chosen to meet a wide range of needs ovie-making and high-end television production, and lution that exceeds 4K. The Cinema Zoom telephoto E30–300mm T2.95–3.7 L S/SP lens rivals best-in-class zoom es, in a surprisingly low-weight, opto-mechanical housing.

on Cinema Compact Zoom Lenses offer 4K resolution in factors that enable more flexible, less intrusive shooting. CN-E15.5–47mm T2.8 L S/SP delivers a wide to medium e of focal lengths, while the CN-E30–105mm T2.8 L S/SP ers wide to modest telephoto shots. Both zoom lenses are l for Steadicam™ and hand-held shooting.

non Cinema Prime Lenses

flexible series of Canon Cinema Prime Lenses offers spectacular mage quality and a full-frame image circle, in lightweight, pact designs. This family of lenses features high optical speed,

entire image plane. In addition to offering full compatib with existing lenses, the EOS C500's EF mount opens u new, creative possibilities with Canon specialty lenses, including Tilt-Shift, Macro and Canon's exhilarating EF 8–15mm f/4L Fisheye USM zoom lens.

Tilt-Shift Lenses — TS-E lenses incorporate tilt and shi functions to extend the shooting advantages of technical cameras to the EOS system. Tilt movements alter the a of the focal plane between the lens and image sensor, modifying depth-of-field independently of the lens ape Shift movements slide the lens' optical axis along the p of the image sensor, enabling photographers to correc alter perspective to almost any angle, and help add unimagined drama to a scene.

Macro Lenses — By revealing the finest detail and ach extraordinary edge-to-edge accuracy at very shallow depth-of-field, macro photography can be an ultimate t optical performance. Canon EF specialty lenses includ ultra-precise macro lenses and three screw-on, close-u lenses. Accompanied by the Life-Size Converter EF and Extension Tube accessories, Canon's macro lens array pro valuable imaging options for the EOS C500 camera.

Fisheye Zoom Lens — Super wide-angle and special-e photography let you capture each subject from a uniqu perspective. The Canon EF 8–15mm f/4L Fisheye USM i world's first fisheye zoom lens to create circular images a 180-degree angle-of-view on full-frame DSLRs.

Canon L-Series Lenses

Canon L-series Lenses are highly regarded by video profess who demand uncompromising optical performance. Th specialty lenses incorporate a number of innovative Ca technologies, including Ultra-low Dispersion (UD) glass fluorite and aspherical lens elements, plus Super Spec Multi Coating.

Canon specifically for high frame rate motion imaging. The 8.85 Megapixel sensor's performance has been laimed in the EOS C300 for its outstanding sensitivity, and that same range of ISO 320 to ISO 20000 product of the novel photodiode design and the larger photosite area – is fully maintained in the EOS 00 for 2K/HD and 4K operation. The uniquely organic nature of the image sensor noise (devoid of any d pattern noise) at high ISO settings has been widely commented upon as being evocative of motion ure film grain. The 12-stop dynamic range imparts a superb tonal reproduction, as well as an exposure ude that helps ensure clarity in deeply shadowed areas of a scene while also preserving details in rexposed portions. The rich color reproduction is a product of Canon's mastery of Color Filter Array (CFA) ign and image sensor spectral response.

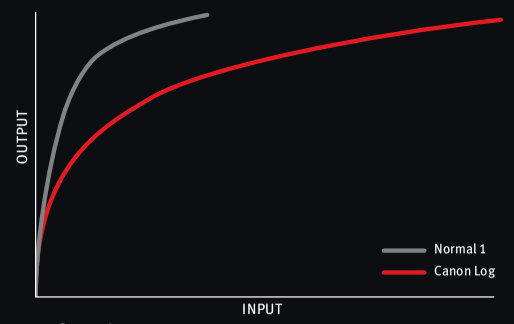
and 2K Origination

ntral design goal for the EOS C500 was to ensure that this e-format single-sensor camera would produce the highest sible quality HD or 2K over a broad range of frame rates. EOS C500 originates 1920x1080 HD in the same unique ner as in the EOS C300. This entails direct readout of the mage sensor (operating in a 3840x2160 QuadHD sampling e), not as the traditional singular RAW signal but rather as parallel 1920x1080 video components. This capability ediately creates an RGrGbB, 4:4:4:4 12-bit component set out any debayering process whatsoever, thus totally ding any reconstruction errors associated with that process.

subsequent summation of the two green video ponents – Gr and Gb – creates a uniquely enhanced n that has exceptionally high sharpness and virtually horizontal and vertical aliasing. This summed green ponent is also endowed with an increased effective amic range. The EOS C500 thus prepares an exceptionally n 12-bit 1920x1080 RGB 4:4:4 HD component set having valled overall image performance.

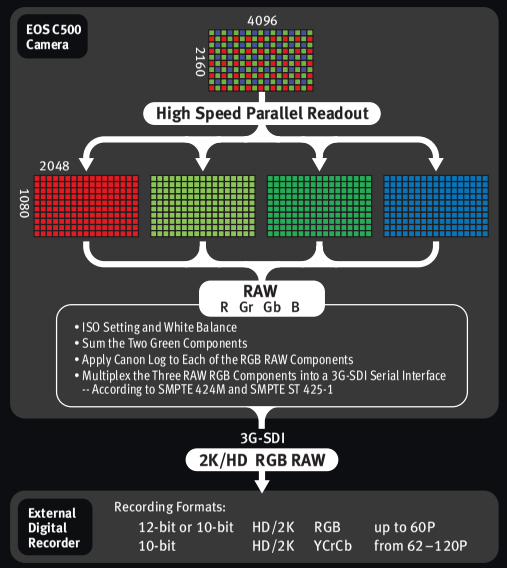
e alternative cinematic 2K mode, this component set is ved from the 4096x2160 photosite sampling of the ge sensor and becomes a 2048x1080 RGB 4:4:4 set, each component at full 12-bit depth.

Canon Log Gamma



***Canon Log** – Ensures tonal reproduction for both highlight and lowlight regions during post-production.*

2K/HD RAW Data Signal Processing



2K Multiple Output Formats

Mode	Resolution	Frame Rate
2K RGB 4:4:4 12-bit	2048 x 1080 / 1920 x 1080	59.94p / 29.97p / 23.98p / 50.00p / 25.00p / 24.00p
2K RGB 4:4:4 10-bit	2048 x 1080 / 1920 x 1080	59.94p / 29.97p / 23.98p / 50.00p / 25.00p / 24.00p

2K Slow and Fast Motion Recording Chart

operate at high frame rates. The only processing baked these RAW signals are two gain settings: one related to camera ISO setting, and the second related to white bal

Canon Raw is stored as file clips, and each frame is in a Media Format file. A specific take within a shooting proje stored in a folder containing multiple file clips. From origin within the image sensor to final playback through the di recorder, there is no loss in overall picture quality in eith HD or 2K modes. Full color space and exposure latitude preserved, and downstream digital image manipulations superbly supported.

Canon Log

One of the critical design goals of the EOS C500 was to ensure that the uncompressed 2K or HD component vi set could be interfaced with multiple well-known digital recorders via a standard serial digital interface. As such, t total data rate over this interface had to be carefully mana A key element is that Canon Log is applied to the three R component-video signals, as is ensuring that the full 12 st of dynamic range are protected in that recording process

It is important to note that this is the only form of video processing applied to these signals and, accordingly, the RAW integrity is ensured. The associated mathematics a coding levels of Canon Log are published on the Cinema website; this information allows restoration in post-produ of the RGB components to three linear video component bit depths of 14 or 16 bits. Traditional RGB video processi subsequently applied in the grading and finishing proces

HD and 2K Recording

Because the Canon RAW signals are, in fact, a 4:4:4 RG component-video set, they are carefully multiplexed in t EOS C500 in strict accordance with the SMPTE 424M a SMPTE ST 425-1 3G-SDI video standards. (This standard out how to multiplex four component RGB+A into a sing serial stream.) The EOS C500 features two separate 3G-S interface connectors. At the internationally standardized progressive picture capture rates of 23.97/24.0/25/29.7/50 only one of the 3G-SDI interfaces is required to transpo 12-bit 4:4:4 RGB video components to the relevant externa recorders.

When higher frame rate operation is desired for slow m effects – up to a limit of 120P – then the two 3G-SDI inter are required in order to transport the far higher data rat entailed. And here, the component set will be switched 12-bit RGB to 10-bit YCbCr. The EOS C500 can also be swi to deliver an alternative 10-bit RGB via the single 3G-SD output serial interface if either the image recorder or the post-production system operates at this lower bit depth

Slow and Fast Motion Recording

In addition to the EOS C500's operation over the range fixed, worldwide picture capture rates listed above, crea

ted in most 4K single-sensor cameras, the EOS C500 ctures its RAW file as a multiplex of four separate 2K ponents.

readout of the 4K image sensor is always a direct action of a 4:4:4:4 RGrGbB component set – each being format. Those 12-bit parallel signals fully retain all of the color-coded information from the 4096x2160 photosites ch utilize a classic Bayer CFA).

RAW Power

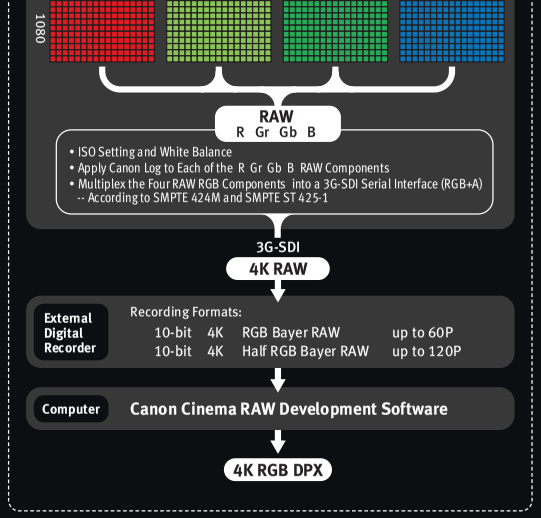
se four 2K signals form the basis of Canon's RGB Bayer information. The high bit rate components are first sformed by a Canon Log transfer function to 10-bit als. This step effectively protects the camera's 12-stop amic range capability, while also contributing to the bit reduction strategy required to create a viable RAW total rface data rate for the external digital 4K recorders. se four components are then multiplexed in the C500 according to the SMPTE 424M and TE ST 425-1 3G-SDI video standards by slotting the four GbB components into the four RGB+A channels stipulated in those standards. The resulting single serial digital file omes the Canon RAW output file.

file has embedded audio files, complying with the BWF dard, and an associated management file that contains rmation about the RAW file, the audio file and Metadata s, etc. All details of the Canon 4K RAW file have been ed with all collaborating recording manufacturers. This RAW signal like no other in the 4K world, and it is owed with some stellar attributes – not the least of ch is that it constitutes a highly robust, uncompressed signal for recording.

Recording

Canon RGB Bayer RAW serial interface is accepted by ous image recorders that operate with the EOS C500. of these external recorders has its own unique design associated data-management strategy. Some record ompressed, some apply mild compression, while others scode to other industry formats prior to recording. With recording strategy, there is an associated workflow carries through to editing and final grading in post-duction. This diversity of workflows helps facilitate the ous workflow preferences for moviemaking, high-end vision origination, and TV commercial production.

EOS C500 sends the 10-bit 4K RAW (in either format) via of the 3G-SDI interface connections at picture capture s of 23.97/24.0/25/29.7P. Because of the high overall rate necessary for 50P and 60P, two 3G-SDI interfaces required. Picture capture rates up to 120P are also sible using two interfaces, but here the vertical is mated to 1080 lines to create a Half-RAW file that stays in the total required 6 Gbps limit. These vertical lines are restored in post-production.



	3840 x 1080	50Hz	1–50 in 1 frame increments 52–100 in 2 frame increments

4K and Proxy Multiple Output Formats

Mode	Resolution	Frame Rate
4K RAW 10-bit	4096 x 2160 / 3840 x 2160	59.94p / 29.97p / 23.98p / 50.00p / 25.00p / 24.00p
50 Mbps (CBR) 4:2:2 422P@HL	1920 x 1080	59.94i / 29.98p / 23.98p 50i / 25p True 24 (24.00)
	1280 x 720	59.94p / 29.98p / 23.98p 50p / 25p True 24 (24.00)
35 Mbps (VBR) 4:2:0 MP@HL	1920 x 1080	59.94i / 29.98p / 23.98p 50i / 25p
	1280 x 720	59.94p / 29.98p / 23.98p 50p / 25p
25 MBPS (CBR) 4:2:0 MP@H14	1920 x 1080	59.94i / 29.98p / 23.98p 50i / 25p

two-frame steps; and from 62 to 120 fps the system swi to Half-RAW format and the picture capture rate is selec able in two-frame steps.

Proxy Video Recording In-camera

While the EOS C500 camera is recording 4K, 2K or HD the external recorder, the internal MPEG-2 codec alway records an 8-bit 4:2:2 1920x1080 HD video conversion 50 Mbps to create a high-quality proxy file. This data is recorded to two Compact Flash (CF) cards using the ind standard Material Exchange Format (MXF) wrapper form

4K Interval Recording and Frame Recor

The EOS C500 incorporates an Interval Recording funct that facilitates programming the camera to record a specified number of frames at specified intervals for time-lapse capture. For stop-motion animation and othe effects, the Frame Recording mode enables the EOS C5 to record a selectable preset number of video frames e time the record button is pressed.

erating with the camera at either 2K/HD or 4K. In the case of the former, there is an essentially mless transfer of 2K/HD component 4:4:4 RGB into the post-production suite – the primary variable ng the choice of 12-bit or 10-bit system operation. Transcoding to other industry file formats may be ired, and some external recorders can handle this function; some deliver DPX files as their output. In case of 4K shooting, the unique four-component Canon RGB Bayer RAW signal faithfully transports of the 4K Bayer color encoding via 3G-SDI interfaces to the recorders. Within the various recorders, se Canon files are managed in different ways.

rkflow varies between moviemaking and television production, and is even more dependent upon innovation and practices of all involved. How file backups are implemented, dailies prepared, ether initial workflow is preferred on set or near set – all of these decisions are based upon technical l creative philosophies. Flexibility is the key, and Canon reached out to the established recording nufacturers. Each has quite different implementations within the recorders themselves. They offer erent outputs, and some have ancillary media-management stations.

ovative Approach to 4K RAW Systemization

fact that Canon chose to structure the 4K RAW file in plete accordance with the universal 3G-SDI interface dard adds a truly unique systemization strength to the C500 system. The 4K serial RGB Bayer RAW signal can assed directly though any digital router that embodies a SDI SMPTE interface, and can be input to any production cher that also utilizes such an interface.

n mobile hand-held shooting is used, the RAW signal be connected to a miniature wireless transmitter nted on the camera and the RAW file can be sent to a rder elsewhere on the set. In addition, the RAW signal be sent over a fiber link using 3G-SDI compatible t-output encoders, and also sent to a transmission oder that accepts 3G-SDI inputs and then sent via llite, cable, or Telco link, depending upon the nature of encoder.

live television production, the ability to pass the 4K RAW hrough an existing 3G broadcast infrastructure opens ignificant systemization degrees of freedom.

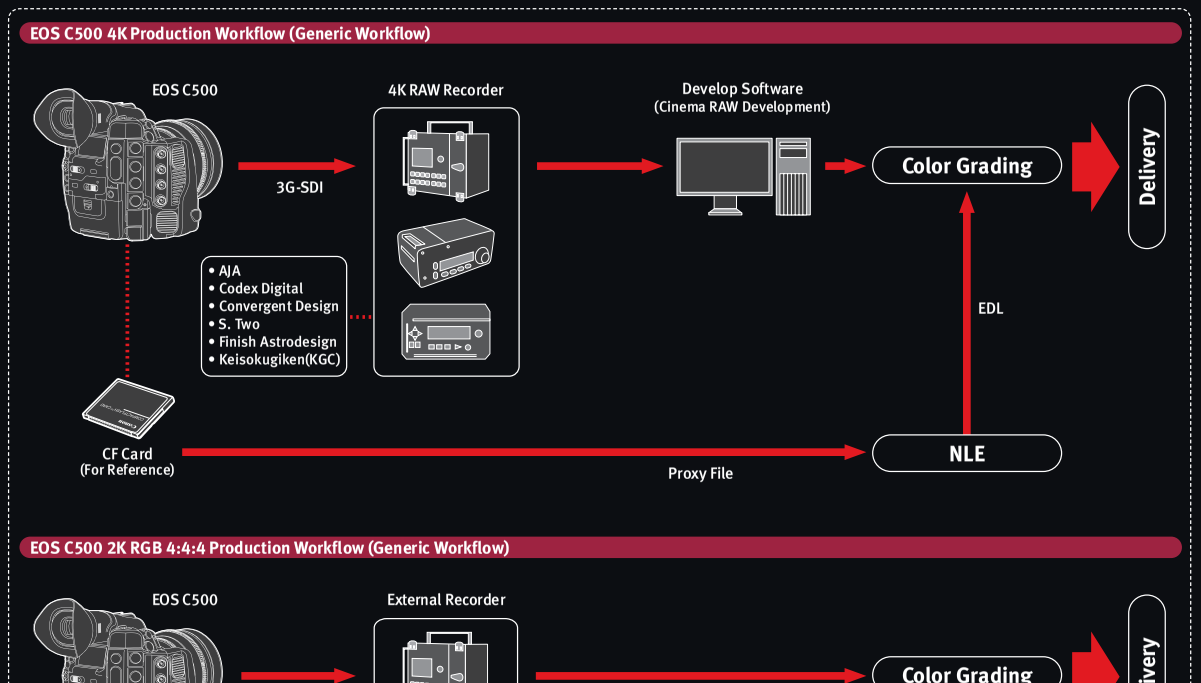
RAW Workflow

in, it is the choice of 4K RAW recorder that will determine much of the overall workflow. One recorder transcode the Canon files to 4K high level ProRes and a er data rate proxy, with both recorded on an SSD card. card reader takes these files directly into post-production. ring an alternative, this recorder will also record and play the Canon 4K file and output this via a Thunderbolt rface to a Mac or PC workstation loaded with Canon's software. The latter application debayers these 4K files converts them to RGB DPX files that then can go ght to post-production.

ther recorder records the Canon 4K files to SSD cards

"From camera to mobile to DI bank the look is controlled the whole way through and we get to start coloring right away creatively."

John Daro / Senior Colorist for "Man & Beast"



Digital Recorders – The Nerve Center o 2K/HD and 4K Workflows

File-based workflows have become the norm in contemp digital production, closely emulating Digital Intermediate workflows developed for motion picture film origination has been scanned to digital. Canon is presently working closely with six international digital recording manufactu to optimize 4K/2K/HD acquisition systems. These recor come in many flavors – some record the files directly uncompressed and output the same upon playback, oth transcode the files to other alternatives like ProRes, while still others debayer within the recorder and delive RGB DPX files.

In the case where the Canon 4K files themselves are delivered, they can be played into a computer with Can Development Application software that will debayer and output 4K RGB as DPX files.

2K or HD 4:4:4 Recording workflows

Production generally starts with a decision to work with either of the 12-bit or 10-bit depth RGB outputs that can selected on the EOS C500 camera. Canon Log has bee applied to either format to ensure faithful capture of the camera's total 12-stop dynamic range. An external recor accepts this RGB 4:4:4 2K or HD output via a 3G-SDI inp and records it as DPX files onto SSD cards. The cards a subsequently loaded into a reader that transmits these via fast Thunderbolt, Firewire or USB to a Mac or PC workstation.

Another recorder directly records the RGB 4:4:4 to SSD cards and then loads these into a compact, on-set medi management station that can, in turn, perform a variety transcodes and play back the programming as DPX files ProRes, and Open EXR, all of which can then go directly the grading process. Yet another recorder internally transcodes the input to ProRes at a high level and recor those files and a secondary lower data rate proxy versio Their associated reader plays these back into the post-production grading system.

t, first and foremost, supported both mobility and superb hand-held maneuverability in order to litate shooting from fast moving vehicles and in very confined spaces, as well as allow dramatic low ts and flexible Steadicam™ operation.

onceptual model was the compact 16mm film camera that had been honed after decades of design ut the digital cine camera of today has been given far more powerful 2K/4K digital imaging capabilities. ile low weight was a particular priority, it was tempered by the need for an exceedingly rugged ign that anticipates multiple shooting modes in challenging environments.

e central camera body is accompanied by accessories that can quickly empower the camera operator manage a diverse range of shooting modes. A high-resolution EVF, electronic focus aids, a waveform nitor to aid exposure, a vectorscope and wireless remote control all add to that empowerment.

mpact, Modular, Lightweight Design

EOS C500 features a compact, fully-modular design for anced mobility and expandability; the robust, splash-stant body features a special magnesium alloy for tional rigidity and toughness. In addition to a low-angle era-Handle Extension, a removable LCD Monitor and trol Panel with XLR audio inputs help ensure maximum euverability.

mpatibility with Third-party Accessories

on has collaborated with a number of third-party vendors elp ensure full plug-and-play compatibility with a range atte boxes, flag shades, support rods and follow-focus ems, including geared control rings, marking discs and stment knobs. Geared control rings are a must-have for with pitchless still-camera lenses; a wind-around gear nted on the focus ring lets the chosen lens function with liar follow-focus rigs. A marking disk provides space for measured positions when shifting focus.

and PL Mount versions

EOS C500 is available with the industry-standard nount that accepts a wide range of options from the global inventory of cinematography lenses, especially

EF and PL Mount

Wireless File Transmitter WFT-E6A

mixing between the two source channels; channel reve also provided. Switchable mic-level trim is available at -1 -6dB, 0dB or +12dB, plus 48V phantom power for conde microphones. A built-in limiter controls sudden signal pe that can cause overload and distortion. A 1kHz test tone switchable to -12, -18 or -20dB levels enables system se and alignment.

Full Manual Control with Customizatio

The EOS C500 offers full manual control of all functions including iris, shutter speed, gain, zoom, focus and audi levels, thereby allowing the camera operators to adapt both technical and artistic challenges during shooting. F maximum customization, access is provided to Custom Picture Settings, Custom Functions and Custom Display Options to tailor the EOS C500 precisely to specific shooting needs.

Ultra-high Resolution EVF, Focus Aids, Waveform Monitor, Vectorscope and Edge Monitor

The EOS C500 features an ultra-high resolution 0.52-inch Megapixel electronic viewfinder/EVF with a widescreen aspect ratio. An approximately 100% field-of-view cover ensures comfortable and accurate image composition, f and color adjustment. The supplied Monitor Unit's 4.0-in LCD panel offers a 1.23 Megapixel resolution for enhanc viewing convenience; it rotates forwards and backward through 270 degrees with an optimal position for shoul mounted shoots. Enabling easy checking of scene composition while using the camera at low angles, the L panel can also be rotated for monitoring from one side the camera.

For added flexibility, the LCD panel can also be mounte various positions to accommodate different viewing pos required by the operator, director or producer. Such flex and ease of movement makes the display easier to use t rigid design, which can be easily bumped or jarred duri shoot.

Two peaking modes and a magnify-focus assist that are available in both standby and record mode make it extre easy to check and confirm critical focus. An Edge Monit Focus Assist system, which was first introduced with the Canon XF series camcorders, shows overall focus of the image plus focus status of focus-check boxes.

A versatile waveform monitor provides detailed analyse both overall image brightness and RGB components, wh an on-board vectorscope displays real-time image hue saturation analysis while checking color balance, and le you view the effects of white balance adjustments.

Wireless File Transmitter WFT-E6A Uni with Remote Capabilities

To provide unique capabilities, the EOS C500 can be us

duction, and television commercial shoots. Built to withstand the most adverse conditions encountered location during film and video shoots, the EOS C500 delivers pristine-quality images and full-fidelity io. The camera body is compact and lightweight – yet superbly rugged and durable – and can be taken where and mounted in countless configurations that open up endless creative possibilities. This is the nera intended to meet the most imaginative aspirations of the creative community.

erly dependable in capturing the highest possible HD or 2K digital imagery for today's programming eds, the EOS C500 also future-proofs your investment by embodying full 4K capabilities. This is a nera the production team can depend on. With its complete range of 50 and 60Hz based frame rates d up to 24 fps) for all its formats, it is ready to shoot anywhere in the world. And because it is supported multiple international recording manufacturers, the EOS C500 is not bound to any recording format or ording media – that choice remains squarely in the hands of the production team.

Dual CF Card Slots

Two Monitoring Ports

4K / 2K RAW Output Ports

gged, Durable and Quiet

elp ensure reliable operation, the EOS C500 features st-resistant, splash-proof design intended to withstand ile environments when in use in the field, with sealing s around edges of access covers, and control dials fitted a sealing O-ring on the axis of rotation. Button key-tops also sealed with rubber boots to keep out moisture.

refully designed cooling system with fans and vents at e separate positions on the side of the camera draw anted heat out of the EOS C500's body.

for continuous shoots. The second CF card takes over automatically after the first becomes full.

To further help reduce your workload during editing, Canon's free Data Import Utility software application – available in both Windows®- and Macintosh®-compatible formats – automatically recognizes divided media as a si continuous file. A 64GB card offers 160 minutes of recor time at a 50 Mbps record data rate.

Terminals

The EOS C500 comes complete with essential I/O inter via professional-grade BNC, XLR and multi-pin connecto A pair of 3G-SDI connectors output the Canon Log Gam data and audio signals at resolutions and frame rates established within the EOS C500's 4K/2K priority mode settings. Two additional Monitor BNC connectors can be used to connect a 2K/HD video signal to an external mo mounted on the camera, as well as possibly to an on-se master monitor, with a choice of either Rec709 or Wide color-adjustment look-up tables (LUTs).

A Sync Out connection carries a choice of HD Sync/HD-SD black burst/composite signals, while a Genlock Input allows the EOS C500 to synchronize with external video systems. A dedicated timecode In/Out connector enable the camera to either lock to external timecode or feed it internally generated timecode to an external system.

Designed to be fully Local Application Control Bus/ LANC-compatible, the EOS C500 can be remotely contr during situations where the operator cannot secure acc to user controls and functions, or when using a tripod handle or jib arm that places the camera body beyond convenient reach.

PreREC

Pre-Record/PreRec mode constantly records approxima three seconds of video images to the EOS C500's inter buffer memory, helping ensure that you never miss a un shooting opportunity on location.

Custom Pictures

In addition to full manual control of all functions, includi iris, shutter speed, gain, zoom and focus, the EOS C500 provides access to Custom Picture Settings, Custom Functions and Custom Display Options that let users customize the camera to precisely their specific needs.

Black Balance Adjustment

If RGB black levels incur minor offsets – due perhaps to operation in very high environmental temperatures – th are automatically rebalanced when the lens is capped a the camera powered up.

dgets, profit requirements and inevitable deadlines. Professionals want to know they are dealing with fessionals; while dealing with Canon, you can count on a proven creative partner. Our service is rld-class, with Canon support programs specially customized to meet your needs. And, to help ensure t you remain current with new technologies and techniques, our educational commitment spans the ge of live and online resources.

dicated Service for Professionals

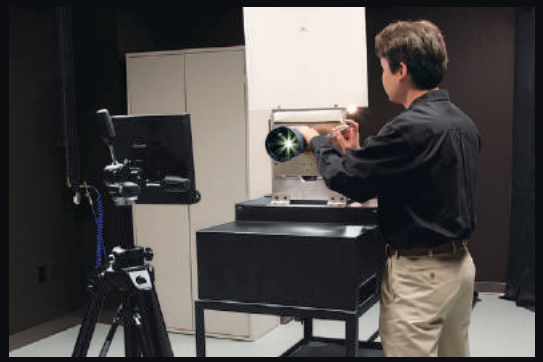
Canon Hollywood Professional Technology & Support ter was established to bring our world-class service ctly to motion picture studios, the television industry, independent producers and videographers. Located in heart of Hollywood, CA, our facility is staffed with expert nicians who are fully prepared to take care of all your ema EOS products. We can accurately adjust cameras and es, repair both cinema and still-photography equipment, meet the needs of professionals like yourself who are king with tight and often inflexible deadlines.

our industry-leading turnaround times and substantial ice-parts inventories, we aim to get you back in action And while working on location, you can count on Canon's onwide service centers for factory-quality repairs and lable 24/7 Call Center support. And this is just part of two-way relationship with you, the end user. Canon not makes certain that all of your equipment is functioning ectly when delivered, but we also use your valuable dback and suggestions to help develop new and even er products. In fact, the Cinema EOS system was eloped as a direct result of such industry feedback.

pport Programs Customized for ur Needs

ematographers, production companies, film schools and r industry professionals can take advantage of optional ice programs tailored to meet their specialized needs. offer service partnerships for full-service dealers as well ental houses, thereby providing additional flexibility to on's industry partners. We tailor our custom training ages to the needs of your specific film and TV productions

Professional SERVICE & SUPPORT
Speed. Quality. Excellence.



CANON LIVE LEARNING

CANON DIGITAL LEARNING CENTER

Unsurpassed Educational Resources

Education is another important cornerstone of Canon's commitment to professional cinematographers. Whethe working online, at a production lot or as part of a remote shoot, we are here to provide you with all the essential resources that you need to remain current and keep yo creative passion alive.

Canon Live Learning (CLL) seminars and workshops ar conducted nationwide and in our Hollywood Profession Technology and Support Center, with classes taught by industry experts as well as Canon's renowned and experien Explorers of Light. Covering a wide range of still and cinem topics, ranging from techniques through equipment selec to in-depth system configuration, CLL events offer professio and enthusiasts alike the opportunity to sharpen their sk in a number of immersive hands-on settings.

Schedules are available at: **usa.canon.com/canonlivelear**

The **Canon Digital Learning Center**, our web-based education and information portal, is targeted at busy, wor professionals. It is widely recognized for its depth of avai information, which is presented in a friendly, compellin format. The Canon Digital Learning Center's comprehen online resources include tutorials, interviews, QuickGuid and downloadable White Papers; it continues to grow wit addition of information in support of the new Cinema EO family of video products. Available assets range from comprehensive system FAQs, technical articles by profess cinematographers, interactive menu and button simulat to tutorials, sample videos, behind the scenes and much more. And because the Canon Digital Learning Center

g DPI

; SYSTEM

hangeable Lens System: Choice of PL- or EF-mounts for compatibility with a wide variety ; systems.
'Focus Preset: Not Available
lless Zoom: Not Available
l Teleconverter: Not Available
ter: Mechanical ND filter system with option of clear, 2, 4, and 6 stops
is Dial located on camera body for use with EOS EF Lenses with electronic ntrol (EF Camera version only)
ıeral Illumination Correction: Available on EF-mount Model only

OSURE AND METERING

ure Modes: Manual
ing Modes: Not Available
Normal Setting -6 dB to 30 dB / Fine Setting 0 dB to 24 dB in 0.5 dB increments
20 to 20000
Gain Control (AGC): Not Available
lless Gain: Not Available
ure Compensation/AE Shift: Not Available
er Modes: 5 Modes: OFF; Speed; Angle; Slow Shutter; Clear Scan
Mode is selected in 1/3- or 1/4-stop increments
er Speed Range:
/59.94p: 1/60 to 1/2000 in 1/4 or 1/3 stops; SLS: 1/4, 1/8, 1/15, 1/30; CS: 59.94Hz – 250.27Hz
p: 1/30 to 1/2000 in 1/4 or 1/3 stops; SLS: 1/4, 1/8, 1/15; CS: 29.97Hz – 250.27Hz
)/24p: 1/24 to 1/2000 in 1/4 or 1/3 stops; SLS: 1/3, 1/6, 1/12; CS: 23.97Hz – 250.27Hz
0p: 1/50 to 1/2000 in 1/4 or 1/3 stops; SLS: 1/3, 1/6, 1/12 1/25; CS: 50.00Hz – 250.78Hz
/25 to 1/2000 in 1/4 or 1/3 stops; SLS: 1/3, 1/6, 1/12; CS: 25.00Hz – 250.78Hz
er Angle Settings:
i/59.94p: 360, 240, 216, 180, 120, 90, 60, 45, 30, 22.5, 15, 11.25
p: 360, 240, 216, 180, 120, 108, 90, 60, 45, 30, 22.5, 15, 11.25
)/24p: 360, 345.6, 288, 240, 180, 172.8, 144, 120, 90, 86.4, 72, 60, 45, 30, 22.5, 15, 11.25
0p: 360, 300, 240, 180, 150, 120, 90, 60, 45, 30, 22.50, 15, 11.25
**60, 300, 240, 180, 150, 120, 90, 75, 60, 45, 30, 22.50, 15, 11.25
perture) Range: EF Lenses only – 1/2, 1/3-stop or fine setting can be selected
h Manual Control on Cinema Lenses

US

Settings: Manual
ocus System: Not Available
des: None

RNAL RECORDING OUTPUT

ution:

	Resolution	Frame Rate
V 4:4:4 10-bit	4096 x 2160 / 3840 x 2160	59.94p / 29.97p / 23.98p / 50.00p / 25.00p / 24.00p
3 4:4:4 12-bit	2048 x 1080 / 1920 x 1080	59.94p / 29.97p / 23.98p / 50.00p / 25.00p / 24.00p
B 4:4:4 10-bit	2048 x 1080 / 1920 x 1080	59.94p / 29.97p / 23.98p / 50.00p / 25.00p / 24.00p

Space: 4:2:2 or 4:4:4
Log: Yes

ORDING/CODEC (INTERNAL)

System: 59.94Hz and 50Hz
ression: 8-bit MPEG-2 Long GOP
Space: 4:2:2
num Bit rate: 50 Mbps (CBR)
Log: Available
ding Options:

	Resolution	Frame Rate
ps (CBR) 4:2:2 422P@HL	1920 x 1080	59.94i / 29.98p / 23.98p 50i / 25p True 24 (24.00)
	1280 x 720	59.94i / 29.98p / 23.98p 50p / 25p True 24 (24.00)
ps (VBR) 4:2:0 MP@HL	1920 x 1080	59.94i / 29.98p / 23.98p 50i / 25p
	1280 x 720	59.94i / 29.98p / 23.98p 50p / 25p
ps (CBR) 4:2:0 MP@H14	1440 x 1080	59.94i / 29.98p / 23.98p 50p / 25p

ding Time:

apacity 'd)	Bit Rate (VBR) 50 Mbps	35 Mbps	25 Mbps
	5 Minutes	5 Minutes	10 Minutes
	10 Minutes	10 Minutes	20 Minutes
	20 Minutes	25 Minutes	40 Minutes
	40 Minutes	55 Minutes	1 Hour 20 Min.
	1 Hour 20 Min.	1 Hour 50 Min.	2 Hours 35 Min.
	2 Hours 40 Min.	3 Hours 45 Min.	5 Hours 10 Min.

ding Media:

and R output channels.
XLR Mic Trimming: Available; -12 dB, -6 dB, 0 dB or +12 dB
Limiter: Available
Recording Level Adjustment Range: - Infinity to +18 dB
Phantom Power: Available; +48V
Headphone Adjustment: 16 Settings; Volume is muted at lowest setting
Built-in Speaker: None
1KHz Tone: Available; -12, -18, or -20 dB

FEATURES AND PERFORMANCE

Playback: Clip Display: 3x4 Index Display, Original, "OK Mark," "Check Mark," "Shot Mark," Expand, Photo (SD Card), Clip Metadata
Clip Playback: Forward Search (x5, x15, x60), Reverse Search (x5, x15, x60), Forward Frame Advance, Reverse Frame Advance, Record Review, Skip to Next Clip, Skip to Previous Clip
Clip Information Display: Clip Metadata Display, Custom Picture Settings
Playback Functions: Inter-media Copy (Single Clip, All Clips, Last Clip); Clip Delete (Single Clip, All Clips, Last Clip); Still Image Playback: Index, Single Playback, Erasure, Protect
Slow and Fast Motion Recording:
4K RAW – 4096 x 2160 / 3840 x 2160 (Playback Rate: 60Hz / 24:00) Record Rate: 1–60. 32–60 in 2 frame increments (Playback Rate: 50Hz) Record Rate: 1–50. 26–50 in 2 frame increments
4K HRAW – 4096 x 1080 / 3840 x 1080 (Playback Rate: 60Hz / 24:00) Record Rate: 1–60. 62–120 in 2 frame increments (Playback Rate: 50Hz) Record Rate: 1–50. 52–100 in 2 frame increments
2K RGB 4:4:4 – 2048 x 1080 / 1920 x 1080 (Playback Rate: 60Hz / 24:00) Record Rate: 1–60. 32– 60 in 2 frame increments (Playback Rate: 50Hz) Record Rate: 1–50. 26–50 in 2 frame increments
2K YCC 4:2:2 – 2048 x 1080 / 1920 x 1080 (Playback Rate: 60Hz / 24:00) Record Rate: 1–60. 62– 120 in 2 frame increments (Playback Rate: 50Hz) Record Rate: 1–50. 52–100 in 2 frame increments
50 Mbps – 1920 x 1080 (Playback Rate: 29.97p/23.98p/24.00p) Record Rate: 1–30 (Playback Rate: 50i/25p) Record Rate: 1–25

50 Mbps – 1280 x 720 (Playback Rate: 59.94p/29.97p/23.98p/24.00p) Record Rate: 1–60 (Playback Rate: 50p/25p) Record Rate: 1–50

35 Mbps – 1920 x 1080 (Playback Rate: 29.97p/23.98p/24.00p) Record Rate: 1–30 (Playback Rate: 50i/25p) Record Rate: 1–25

35 Mbps – 1280 x 720 (Playback Rate: 59.94p/29.97p/23.98p/24.00p) Record Rate: 1–60 (Playback Rate: 50p/25p) Record Rate: 1–50

25 Mbps – 1440 x 1080 (Playback Rate: 29.97p/23.98p) Record Rate: 1–30
Special Recording Functions: Relay Recording*; Double-Slot Recording**; Copying between Media
* Not available during Slow Motion 50 Mbps recording
** Not available in combination with Slow and Fast motion recording

NOTE: Special features other than Slow and Fast Motion Recording are not available in 4K and 2K modes
Photo Recording Mode: Available; Images captured to SD Card
Waveform Monitor: Available; 2 Modes (Standard and RGB Component)
Vectorscope: Available
Exposure / Focus Aids: Peaking (2 types), Zebra Pattern*, Magnify, Edge Monitor Focus Assist,

Black and White Mode / * Can be output via the SDI or HDMI Jack (HD Only)
Interval Record: Available; ability to set time interval and number of frames to record

Interval can be set in 25 levels ranging from 1 second to 10 minutes. (1s/2s/3s/4s/5s/6s/7s/8s/9s/10s/15s/20s/30s/40s/50s/1m/2m/3m/4m/5m/6m/7m/8m/9m/10m)
59.94i/29.97p/23.98p/24.00p: Selectable between 1, 3, 6, 9 frames
59.94p: Selectable between 2, 6, 12 frames
50i/25p/50p: Selectable between 2, 6, 12 frames
Frame Record: Available; Records a set number of frames each time the record button is pressed
59.94i/23.98p/24.00p: Selectable between 1, 3, 6, 9 frames
59.94p: Selectable between 2, 6, 12 frames
50i/25p/50p: Selectable between 2, 6, 12 frames
Pre-Record: Yes, 3 seconds cache (Audio and Video)
Scan Reverse: When using a Depth-of-Field Converter or other lens adapters it flips or reverses the image automatically so it is recorded correctly.
Timecode: Drop Frame (DF) and Non-Drop Frame (NDF)
Drop Frame works with 59.94Hz mode only and is not available in 24P
Timecode Modes: Regeneration, Record Run, Free Run and External Source
Auto White Balance (AWB): Not Available
White Balance: Kelvin Setting 2,000K to 15,000K in 100K increments
White Balance Presets: Daylight (5,400K); Tungsten (3,200K);
White balance shift is available within Presets (-9 to +9)
Auto Black Balance: Available
Custom Picture Settings: 23 Custom Picture settings
A total of 9 Customized Pictures are available in the camera and up to 20 can be saved to an SD card
Custom pictures can be adjusted using the following settings and saved for later recall: Gamma, Black, Black Gamma, Low Key Saturation, Knee, Sharpness, Noise Reduction, Skin Detail, Selective Noise Reduction, Color Matrix, White Balance, Color Correction, Setup Level
Custom Pictures CP8 and CP9 ship with the following presets:
C8: Cinema – Suited for giving recorded media a film tone
C9: EOS Standard – Used to match the quality of DSLR video shot in EOS standard mode
Custom Functions: Available, 9 total functions
Custom Display: Yes; LCD panel and EVF information display can be customized
Total of 27 display and icons that can be turned on and off
Assign Buttons: 15; Can be assigned functions as desired (37 functions Available)
Color Bars: Color bars compliant with SMPTE, EBU, or ARIB standards can be selected.

Field of View Coverage: 100%
Display Adjustments: Brightness, Contrast, Color, Sharpness, and Backlight (Normal or Bright)
Special Features: Black and White Display, and setting for viewing concurrent images on display

INPUT/OUTPUT

HD/SD SDI: Yes (with embedded audio);
HD 8-bit 4:2:2 (YPbPr) 1920 x 1080: 59.94i/50i/23.98/24.00, 1280 x 720: 59.94p/50p/23.98/24.00
SD 8-bit 4:2:2 (YPbPr) 480: 59.94i, 576: 50i BNC Connector, output only
SD-SDI:
NTSC 480i/PAL 576i: Compliant with SMTPE 259M
Embedded Audio: Compliant with SMTPE 272M
Timecode Standard: (VITC/LTC) SMTPE 12M
HD-SDI: Compliant with SMTPE 292M
1080i/720p: Compliant with SMTPE 292M
Embedded Audio: Compliant with SMTPE 299M
Timecode Standard: (VITC/LTC) SMTPE 12M
3G-SDI: Available; 2x BNC
Output Modes: RAW (10-bit); RGB 4:4:4 (10-bit/12-bit); YCC 4:2:2 (10-bit)
Frame Rates: 23.98p/24.00p/25.00p/29.97p/59.94p/50p
Video Monitor Out: Available; 2x BNC
Resolution: 2048 x 1080 / 1920 x 1080
Frame Rates: 23.98p/24.00p/25.00p/29.97p/30p/59.94p/50p/60p
Color Space: YPbPr: 10-bit
Timecode In/Out: Yes; BNC Connector (Input and Output)
Genlock: Yes; BNC Connector Adjustment range: -1023 to +1023
Synch Out: Yes, BNC Connector
(1) HD tri-level signal (HD Sync) 1920 x 1080: 59.94i/50i/23.98/24.00, 1280 x 720: 59.94p/50p/23.98, 24.00; The HD standard analog component Y signal with the black muted is output.
(2) HD-Y signals (HD-Y) 1920 x 1080: 60i, 59.94i/50i, 1280 x 720: 60p/59.94p/50p; Only the HD standard analog component Y signal is output.
(3) Black burst signal 480: 59.94i, 576: 50i; The SD standard analog composite signal with the black muted is output.
(4) Composite 480: 59.94i, 576: 50i; The SD standard analog composite signals are output.

POWER

Supply: DC 7.4V (Battery Pack) / DC 8.4V (DC-in)
Power Terminal: DC-in on camera (no need for "Dummy Battery")
Battery: BP-9 Series (Excluding BP-925)
Compact Power Adapter: CA-940

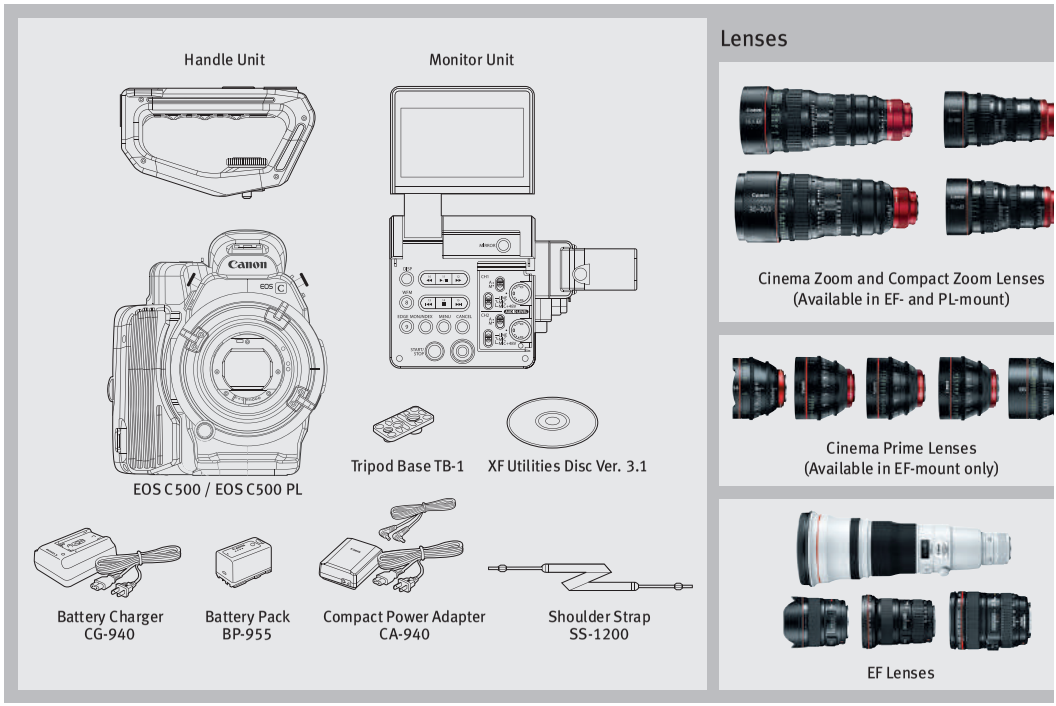
ACCESSORIES

Tripod Adapter: Canon TA-100
Tripod Adapter Base: Canon TB-1
Zoom Remote Controller: Canon ZR2000
Wireless File Transmitter: WFT-E6A

OTHER

Dimensions (W x H x D):
C500 Approx. 6.3 x 7.0 x 6.7 in. (160 x 179 x 171mm)
C500 PL Approx. 6.3 x 7.0 x 7.0 in. (160 x 179 x 177mm)
The following is the same for both models:
C500 + Monitor Unit: Approx. 7.3 x 9.8 x 7.4 in. (185 x 249 x 187mm)
C500 + Handle Unit + Monitor Unit: Approx. 7.3 x 11.2 x 11.9 in. (185 x 284 x 301m
Main Unit Weight:
C500 Body: Approx. 4.0 lb. (1820g), C500 PL Body: Approx. 4.3 lb. (1930g)
Monitor Unit: Approx. 1.4 lb. (645g), Handle Unit: Approx. 6.3 oz. (180g)
Total Equipped Weight:
C500: Approx. 6.0 lb. (2705g)*, C500 PL: Approx. 6.2 lb. (2815g)*
C500: Approx. 6.4 lb. (2885g)**, C500 PL: Approx. 6.6 lb. (2995g)**
* Weights for both models include the monitor unit, BP-955, 2x CF cards.
** Weights for both models include the monitor unit, handle unit, BP-955, 2x CF card
Temperature and Humidity: Performance requirements: 0°C to 40°C, 85% (relative hu
Operating requirements: -5°C to 45°C, 60% (relative humidity)
Language Support: English, Japanese, Chinese, German, Spanish, French, Italian, Polish,
Time and Date: Automatic Calendar Range: January 1st, 2010 through December 31
selectable in American, Japanese and European Date formats.
World Clock: World Clock support – UTC time setting: Setting range from +14:00 to -

EOS C500 System



EOS C500 Kit Contents

- EOS C500 Body (with Camera Cover)
- Monitor Unit (with Microphone Holder Unit and Screws for MHU)
- BP-955 Battery Pack† (with Terminal Cover)
- CG-940 Battery Charger†
- CA-940 Compact Power Ad

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