

BROADCAST TELEVISION LENS, CINEMA LENS & HD PTZ CAMERAS PRODUCT GUIDE

2016



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Specifications subject to change without notice.

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INNOVATION

In TV Optics Since 1958

Toward 100 years anniversary



TOWARDS THE 100TH ANNIVERSARY

It was more than 50 years ago that Canon introduced its first Broadcast Television Lens. Labeled the “Field Zoom IF-1,” this lens featured a 6.7x zoom range, which was the highest in the industry at the time. Since then, Canon has energetically advanced the art of high-end optical design on many fronts in close collaboration with international broadcasters and producers in an unceasing pursuit of product innovation and customer satisfaction. While celebrating the 50th anniversary of servicing the broadcast industry, Canon has been expanding its BCTV manufacturing and working diligently to develop exciting new products for high-end imaging in the 21st century.

BEYOND

(50)

YEARS

INNOVATION

In TV Optics Since 1958

Toward 100 years anniversary

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PRODUCT LINEUP

For over 50 years, Canon has developed innovative technologies to produce products that can suit various shooting situations and meet each user’s demands. The great variety of products listed below are compilations of what Canon has constructed through its long history in the broadcast industry.

4K UHD LENS SERIES (2/3")			
Field Box Lenses	UHD DIGISUPER 86	9.3-800mm/F1.7-4.0	P.16
	UHD DIGISUPER 90	9-810mm/F2.4-4.0	P.16
	UHD DIGISUPER 27	6.5-180mm/F1.5-3.0	P.16
Portable Lenses	CJ20ex7.8B IASE S	7.8-156mm/F1.8-2.6	P.16
	CJ12ex4.3B IRSE S/IASE S	4.3-52mm/F1.8-2.4	P.16

HDTV BOX LENSES (2/3")			
Field Lenses	DIGISUPER 100AF	9.3-930mm/F1.7-4.7	P.18
	DIGISUPER 100	9.3-930mm/F1.7-4.7	P.18
	DIGISUPER 95 TELE	12.4-1178mm/F2.5-6.0	P.18
	DIGISUPER 95	8.6-820mm/F1.7-4.1	P.18
	DIGISUPER 86AF	9.3-800mm/F1.7-4.0	P.19
	DIGISUPER 80	8.8-710mm/F1.7-3.55	P.19
	DIGISUPER 76	9.0-690mm/F1.7-3.45	P.19
	DIGISUPER 60 xs	9-540mm/F1.7-3.0	P.20
	DIGISUPER 27AF	6.5-180mm/F1.5-2.2	P.20
	DIGISUPER 27	6.5-180mm/F1.5-2.2	P.20
Studio Lenses	DIGISUPER 22 xs	7.3-161mm/F1.8-2.6	P.21

HDTV PORTABLE LENSES (2/3")			
HDxs Series	HJ18ex28B IASE S	14-560mm/F2.8-5.1	P.27
	HJ21ex7.5B IASE S	10-400mm/F2.0-3.65	P.27
	HJ17ex6.2B IRSE S/IASE S	28-500mm/F2.8-4.9	P.27
	HJ14ex4.3B IRSE S/IASE S	7.5-180mm/F1.8-2.7	P.28
	HJ15ex8.5B KRSE-V S	7.5-158mm/F1.9-2.6	P.28
	KJ22ex7.6B IRSE S/IASE S	7.6-137mm/F1.8-2.4	P.28
	KJ17ex7.7B IRSE S/IASE S	6.2-106mm/ F1.8-2.9	P.29

HDgc SERIES ENG LENSES (2/3", 1/2", 1/3")				
2/3"	(With 2.0x Ext)	KJ22ex7.6B IRSE/IASE	7.6-168mm/F1.8-2.6	P.32
		KJ17ex7.7B IRSE S/IASE S	7.7-131mm/ F1.8-2.3	P.32
		KJ10ex4.5B IRSE A/IASE A	4.5-45mm/F1.8-2.35	P.32
	(Without Ext)	KJ20x8.2B IRSD	8.2-164mm/F1.9-2.7	P.33
		KJ20x8.2B KRSD	8.2-164mm/F1.9-2.7	P.33
		KJ13x6B KRSD	6-78mm/F2.0-2.7	P.33
1/2"	(Without Ext)	KH20x6.4 KRSD SY14	6.4-128mm/F1.4-2.0	P.34
		KH13x4.5 KRSD SY14	4.5-59mm/F1.5-2.0	P.34
1/3"	(With 2.0x Ext)	KT17ex4.3B IRSE	4.3-73mm/F1.4	P.34
	(Without Ext)	KT20x5B KRSD A	5-100mm/F1.4-1.55	P.34

REMOTE CONTROL LENS SERIES (2/3", 1/2", 1/3")			
HDxs Series	HJ18ex28B ITS-ME	28-500mm/F2.8-4.9	P.40
	HJ24ex7.5B ITS-ME	7.5-180mm/F1.8-2.7	P.40
	HJ18ex7.6B ITS-ME	7.6-137mm/F1.8-2.4	P.40
	HJ14ex4.3B ITS-ME	4.3-60mm/F1.8-2.7	P.40
	KJ17ex7.7B ITS-ME	7.7-131mm/F1.8-2.3	P.40
HDgc Series	KJ22ex7.6B ITS-ME	7.6-168mm/F1.8-2.6	P.40
	KJ20x8.2B KTS	8.2-164mm/F1.9-2.7	P.40
	KH20x6.4 KTS	6.4-128mm/F1.4-2.0	P.40
	KT20x5B KTS	5-100mm/F1.4-1.55	P.40

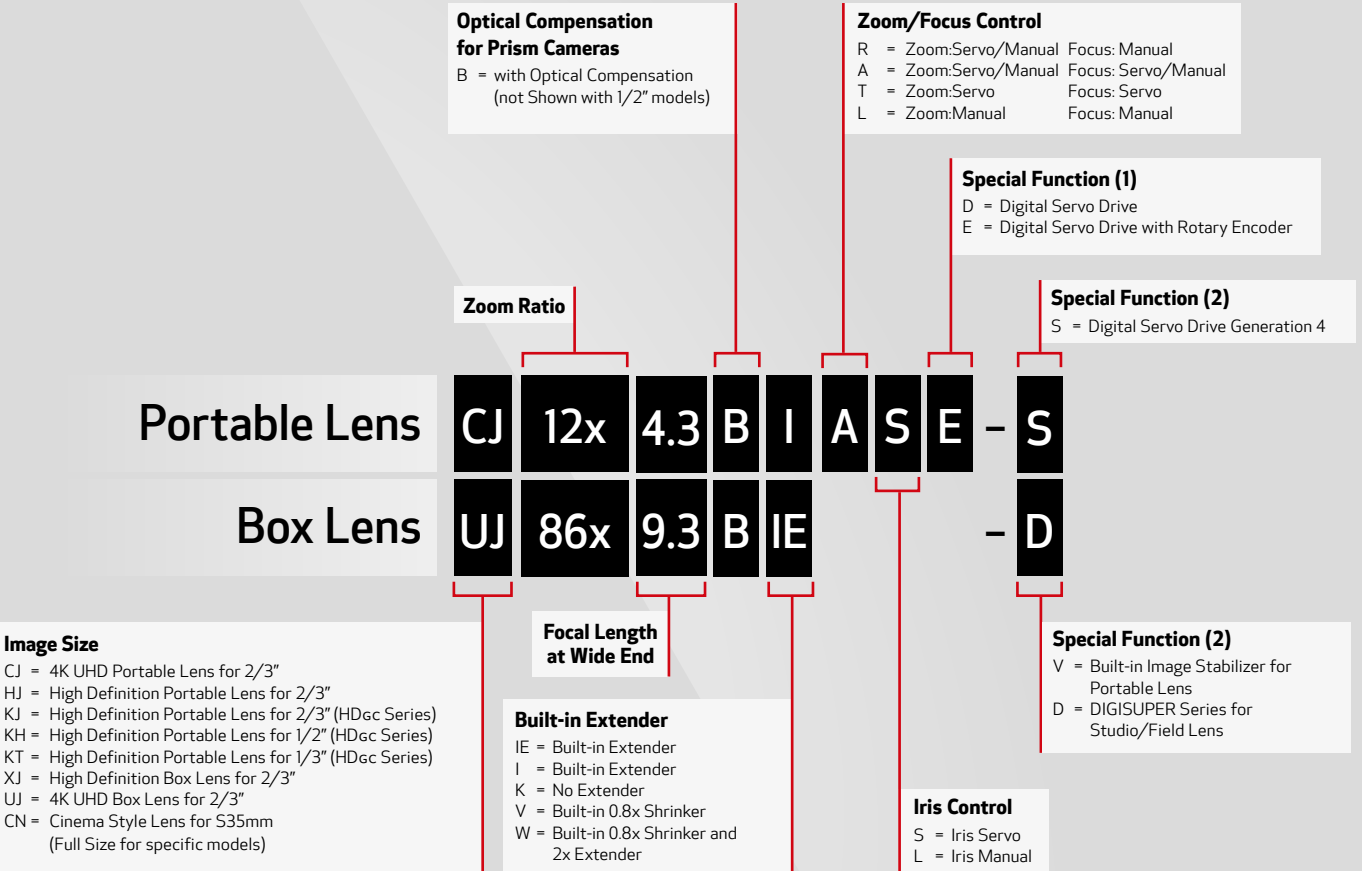
DIGITAL CINEMA LENSES			
Zoom Lens Series	CN-E14.5-60mm T2.6 L S/SP	14.5-60mm/T2.6	P.47
	CN-E30-300mm T2.95-3.7 L S/SP	30-300mm/T2.95-3.7	P.47
Compact Zoom Lens Series	CN-E15.5-47mm T2.8 L S/SP	15.5-47mm/T2.8	P.47
	CN-E30-105mm T2.8 L S/SP	30-105mm/T2.8	P.47
Prime Lens Series	CN-E14mm T3.1 L F	14mm/T3.1	P.48
	CN-E24mm T1.5 L F	24mm/T1.5	P.48
	CN-E35mm T1.5 L F	35mm/T1.5	P.48
	CN-E50mm T1.3 L F	50mm/T1.3	P.48
	CN-E85mm T1.3 L F	85mm/T1.3	P.48
CINE-SERVO Lens Series	CN-E135mm T2.2 L F	135mm/T2.2	P.48
	17-120mm T2.95-3.9 EF/PL	17-120mm/T2.95-3.9	P.50
	50-1000mm T5.0-8.9 EF/PL	50-1000mm/T5.0-8.9	P.50
COMPACT-SERVO Lens	18-80mm T4.4 EF	18-80mm/T4.4 EF	P.51

HIGH DEFINITION PTZ PRODUCTS			
HD Pan-Tilt-Zoom Cameras	BU-47H	Pan: 340° Tilt: + 30°~-50°	P.54
	EVERCAM XU-81	Pan: ±180° Tilt: +220°~-40°	P.54
	EVERCAM XU-81W	Pan: ±180° Tilt: +220°~-40°	P.54

OPTICAL ACCESSORIES P.42-45

CONTROL ACCESSORIES	
DIGITAL CONTROL ACCESSORIES OF DIGITAL DRIVE ENG/EFP LENSES	P.38
ANALOG CONTROL ACCESSORIES OF DIGITAL DRIVE ENG/EFP LENSES	P.39

UNDERSTANDING CANON LENS NAMING CONVENTIONS



CUSTOMER SATISFACTION

Canon is committed to total customer satisfaction. In order to optimize customer satisfaction, Canon's aim is to support users by developing new lens technologies, high-quality technical service systems, and other sales support.

CANON'S WORLDWIDE SUPPORT NETWORK

Well trained sales people and service technicians are ready to support you at these locations.



AUTO FOCUS TECHNOLOGY

To meet the increasing demand in broadcast HDTV production for highly accurate focusing, Canon introduced a revolutionary HDTV Auto Focus System. This pioneering technology automatically keeps images in focus, allowing professional camera operators to concentrate on capturing action and beauty shots.

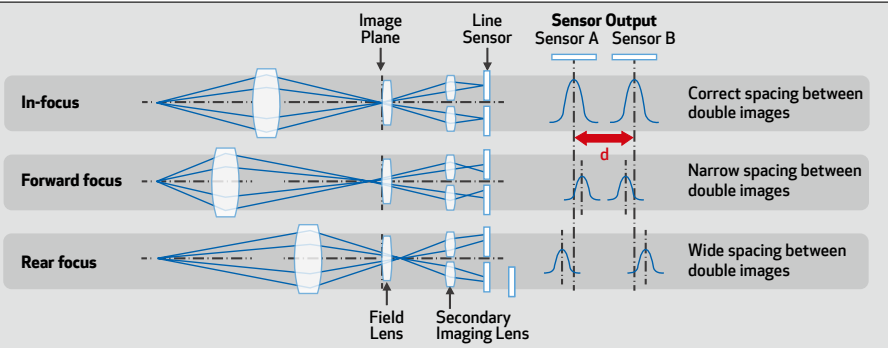
Canon's advanced Auto Focusing for DIGISUPER HDTV Zoom Lenses employs the TTL-Secondary Image Registration Phase-Detection System originally developed for single-lens reflex still cameras, to deliver both high accuracy and a high tracking capability for broadcast HDTV.

This article refers to Auto Focus Technology for DIGISUPER HDTV Zoom Lenses employed in the listed lenses. The specifications of the listed lenses are shown on pages 17-21.



TTL-SECONDARY IMAGE REGISTRATION PHASE-DETECTION SYSTEM

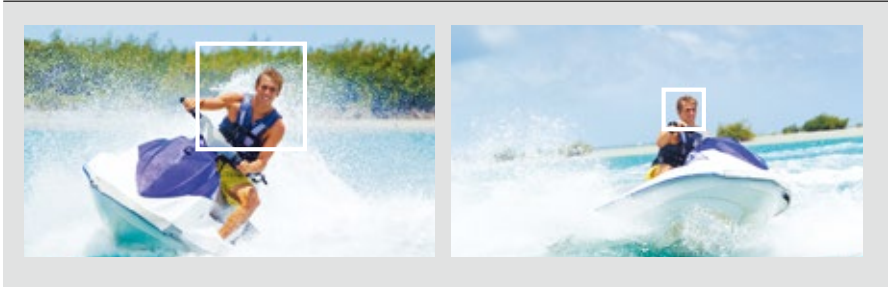
The light transmitting through a pair of the secondary imaging lenses focuses on separate sensors. The sensor output diagram illustrates this state of focusing. The TTL-Secondary Image Registration Phase-Detection System determines the positional relationship between the two images (Refer to "d" in figure) to detect the amount and direction of defocusing.



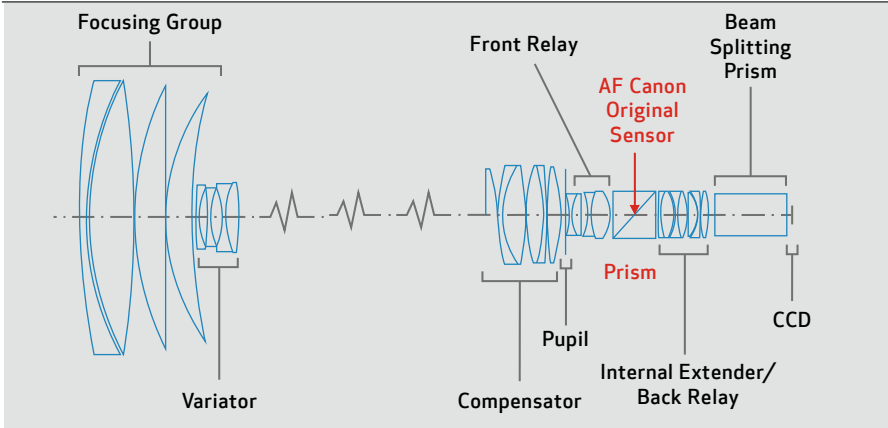
FEATURES

- Extremely high focusing accuracy in full HDTV specifications.
- Ability to focus from a completely de-focused status without hunting.
- Ability to focus on a high speed moving object.
- Size and position of the AF frame (target area) in the camera VF can be changed from the Focus Demand FDJ-P31/P41 (the size of the AF Frame can be changed in 3 steps). Please confirm the AF camera-lens interface with your camera manufacturer of choice.
- The AF system's two operation modes can be the answer to a professional camera operator's various demands.

CHANGEABLE FRAMES



ELEMENT LAYOUT



AF OPERATION MODES WITH ACTIVE / HOLD SWITCH

MODE	FULL TIME AF	PART TIME AF
How AF Works	Usually activated. Focus position is locked while the SW is pushed.	Usually off. Activated while the SW is pushed.
Recommended Application	Sporting event, etc. To follow a moving object.	Studio production, etc. To confirm the best focus position.

HDxs eIFxs HDGC

HDxs, eIFxs, AND HDGC TECHNOLOGY

In 2004, Canon introduced a new broadcast lens technology, eIFxs, by launching the J22ex7.6B. The eIFxs technology consists of two applicable meanings for the letter “e.” One is the “ecological design.” The other is the “enhanced digital technology,” which improves the performance of the digital drive unit. Also, all of these advantages are inherited by the HDgc (IRSE/IASE model) and the HDxs lenses.

ENHANCED DIGITAL DRIVE

The HDxs, eIFxs, and the HDgc (IRSE/IASE model) series are equipped with an information display, a digital function selector, and an X-Y axis switch, so that the user can customize the enhanced digital functions easily and precisely. The design enables the user to fully bring out the digital functions.

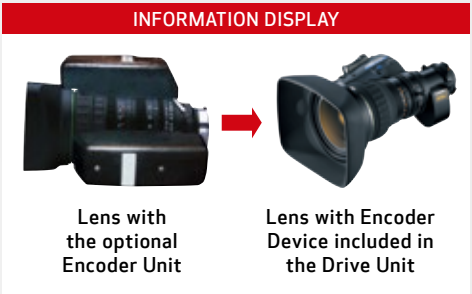
- User settings are both simple and easy to operate. User settings include: speed preset, frame presets (2 memory positions), shuttle shot, zoom track, and focus preset with IASD/IASE lens.
- Follow signal display for Iris, Zoom, and Focus (IASD/IASE only) for virtual reality, robotic control, and other uses.
- User settings for Zoom and Focus curve mode allow precise control based upon the user's requirement.
- AUX 1 and AUX 2 switches can be assigned for basic functions giving enhanced memory capability.
- A precise movement mode can be memorized for the zoom seesaw control, zoom demand control, and preset control.
- The drive unit can memorize 9 patterns of user-customized settings and also transmit the data between different drive units.
- The self diagnostic mode provides an error message, when applicable.



ROTARY ENCODER

Canon offers a series of HDxs, eIFxs, and HDgc (IRSE/IASE model) lenses, which are equipped with an enhanced Digital Drive Unit. 16-bit resolution Rotary Encoder Devices are built into the unit, so the lenses can simply be integrated into a virtual digital studio system without any additions. The encoders also enable superb precise control.

The Zoom Servo provides a dynamic range from 0.5 sec. to over a 5 min. super slow zoom. Repeatability in Focus and Iris control are also precise. Canon's incredible technology has enabled the surprisingly small Encoder Device to be installed in the existing drive unit without any changes in size or weight.



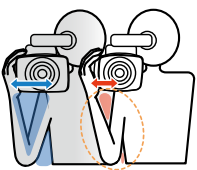
ECOLOGICAL DESIGN

It is Canon's policy to not pollute the Earth and, through research, Canon is quickly reducing its impact on the environment even further. The HDxs, eIFxs, and HDgc series have avoided using any materials or substances that could pollute the environment. The optical parts, featuring lead free glass, are designed to be completely non-polluting and the mechanical parts are virtually free of all harmful products to the earth, such as cadmium, PBBs*, PBDPE,** or mercury.

*PBBs: Poly Bromo Bi Phenyls
**PBDPE: Poly Bromo Di Phenyl Ethers

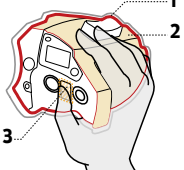
ERGONOMIC DRIVE UNIT

With the launch of the HJ14ex4.3B, Canon introduced a totally new design of the digital drive unit. Refined by long-term market research and worldwide experience, Canon mobilized the latest in 3D CAD-CAM design to significantly improve the human tactile interface to the control of Zoom, Iris, and Focus.



REDUCED PHYSICAL STRESS

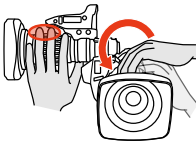
By reducing the width of the drive unit, the palm of the camera operator's hand is positioned closer to the optical axis, thus reducing the degree of arm bend which in turn lessens physical stress during prolonged shooting.



ERGONOMIC DESIGN

The size and curvature size have been optimized to more comfortably fit in the palm of the operator's hand*. Newly developed coatings help improve the tactile interface between the user and the drive unit*2 together with the new Rubber Grip Support*3.

*As shown in diagram above.



IMPROVED EASE OF OPERATION

The spacing between the focus ring and drive unit has been changed to avoid accidental interference with the drive unit while manipulating the focus control.

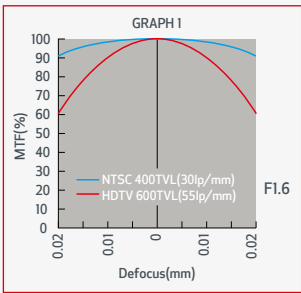
HDgc SERIES

HDGC



HDgc SERIES LENS CONCEPT

Corresponding to the popularity of digital High Definition broadcasting and diversity of HDTV equipment, Canon has added a series to its HDTV lens lineup, the HDgc series. The HDgc series supports the emergence of an important next generation of cost-effective HD acquisition systems. Adopting the advantages created by Canon's unique technology, the HDgc lenses exhibit high MTF, high resolution and high contrast from the center of the image to its extreme edges, meanwhile maintaining its compact size and weight.



SDTV LENSES VS. HDgc SERIES

In the HDTV system, the pixel size is about half. Therefore, the spread of a point image caused by a spherical aberration should be diminished to about half. The MTF varies as the focus changes and even if the image is slightly out of focus, the MTF is greatly influenced, as shown in Graph 1. The HDgc lenses are specially designed to use optical elements that are effective in further minimizing chromatic aberrations, such as “Hi-UD Glass,” “Aspherical Elements,” and other special elements. The HDgc lenses greatly contribute to correcting and minimizing these aberrations at the same time, maintaining high MTF throughout the edge of the picture.

HDgc SERIES QUALITY

HDgc Series lenses are based upon Canon's latest design concepts which support the next generation of cost-effective HD acquisition systems. HDgc lenses are designed to meet the specific bandwidth frequency (or the number of scanning lines) of these HD camera systems and at the same time, to offer an excellent performance-cost optimization.

	SD		HDgc
Test Frequency of Broadcast Camera	320TV Lines/4MHz	up to 640TV Lines/8MHz	up to 800TV Lines
Test Frequency of Broadcast Lens	24 Lines/mm	up to 48 Lines/mm	up to 74 Lines/mm
Actual Canon Resolution of Broadcast Lens	up to 75 Lines/mm		up to 100 Lines/mm

The details of the HDgc lenses are shown on pages 31-34.

HD XS
HD XS
@IF XS

The XS-series lenses are shown with either of these legends on page 18-21 and 27-29.

SPECIAL OPTICAL ELEMENTS AND THE SUBERB OPTICAL LAYOUT (X-ELEMENT AND THE POWER OPTICAL SYSTEM)

Canon has always made an effort to research special elements since its beginnings in this industry with the goal of minimizing chromatic aberration. These efforts have included an artificially re-crystallized "Fluorite," with outstanding dispersion characteristics and the developed "Hi-UD" (high index ultra low dispersion) glass. Canon has succeeded in the practical use of special elements along with advanced design techniques like "separate achromatism." Canon TV zoom lenses carry a "Green Ring" on the focus barrel, a symbol of its high quality.

Canon developed an optical design technology known as the "Power Optical System," whose heart is the "X-Element." By using the "X-Element" to its maximum power in the specially designed optical layout, higher specifications and quality can be achieved in smaller and lighter lenses. The lenses designed using the "Power Optical System" are known as the "XS-series."



Hi-UD Glass



Green Ring

CANON LENS EVOLUTION: LONGER, WIDER AND MORE SENSITIVE LENSES



DIGISUPER 100
(Launched in 2002.)



DIGISUPER 70
(The first lens in the 70x range was launched in 1995.)



SUPER 55
(The first lens in the 50x range was launched in 1987.)



PV40x13.5B
(Launched in 1982.)

Canon previously released several lenses in succession: the J13x9B II in the early 80's, which became the world's standard ENG/EFV lens; the J18x9B in 1984; and in 1985, the J8x6B. These lenses became the first example of today's standard series of ENG/EFV lenses composed of a Telephoto, Standard, and Wide zoom lens. With the current HDTV series, Canon has developed longer, wider, and more sensitive lenses that are approximately the same size and weight as the very first series with vastly improved specifications.

In Studio/Field category lenses, Canon developed the first 40x high zoom ratio lens in 1982 and since then has cleared hurdle after hurdle, breaking new ground by introducing the world's first 50x and 70x lenses.

Then, Canon introduced one of its highest achievements, the DIGISUPER 86xs and DIGISUPER 86 TELE xs, the world's first lens in the 80x range. This lens has reduced the problem of image shake that would have limited the 86x zoom ratio with its unique built-in "Optical Image Stabilizer."

Amazingly, the 86x exhibits improved specifications and employs the "Optical Image Stabilizer" in a package the same size and weight as previous lenses.

In 2002, Canon proudly introduced the world's first triple digit zoom lens, the DIGISUPER 100, with "Optical Image Stabilizer" and a 100x zoom ratio.

Canon's goal is to pursue its philosophy with unique ideas and advanced technologies thus allowing Canon to contribute to the expansion of an ever-changing industry.

OPTICAL IMAGE STABILIZER

EMPLOYMENT OF VARI-ANGLE PRISM IMAGE STABILIZER (VAP-IS)

Canon introduced an important new HD production portable lens, the HJ15ex8.5B KRSE-V. This lens incorporates an innovation intended to significantly enhance HD motion imaging on location shoots of many forms. The lens has a built-in optical image stabilization system that employs Canon's patented Vari-Angle Prism Image Stabilizer (VAP-IS). Canon's IS technology has been dramatically improved since its earlier deployment in a standard definition lens, and produces highly stable HD imagery when the lens-camera system is subjected to a wide range of disturbance frequencies encountered in many shooting environments. These can range from very low frequencies in handheld or shoulder-mount shooting by a walking or running camera operator, to higher vibration frequencies associated with operation on motorbikes, moving vehicles, and helicopters. Various stabilization modes of operation are selectable to address diverse shooting operations.

IMAGE STABILIZER

OPTICAL SHIFT IMAGE STABILIZER (SHIFT-IS)

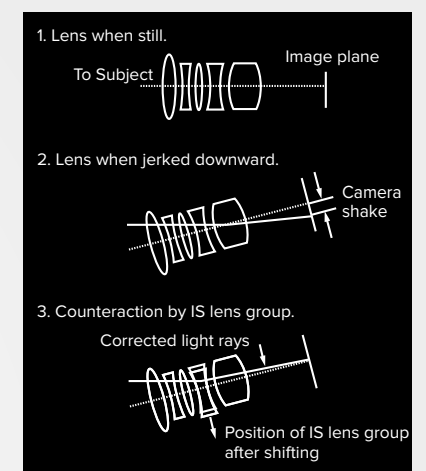


The history of field lenses is a history of zoom ratio/focal length extension. Many in the industry thought it would be impossible to push the envelope any further. The telephoto focal lengths of the lens got so long that even the slightest amount of wind or operator movement would cause image shake and viewing the picture became intolerable. This was before Canon announced the incredible magnification DIGISUPER 86xs zoom lens. Canon, renowned for its optical image stabilization technologies, developed another new stabilization solution for the broadcast field lens, a built-in Optical Shift Image

Stabilizer (Shift-IS) to help overcome image shaking at telephoto focal length. Now the Shift-IS is employed in the UHD DIGISUPER 90, UHD DIGISUPER 86, DIGISUPER 100, DIGISUPER 100AF, DIGISUPER 95 TELE, DIGISUPER 95, DIGISUPER 86AF, DIGISUPER 80, HJ40x10B IASD-V, and HJ40x14B IASD-V.

HOW THE OPTICAL SHIFT IMAGE STABILIZER (SHIFT-IS) WORKS

When the lens moves, the light rays from the subject are bent relative to the optical axis, resulting in an unsteady image because the light rays are deflected. By shifting the IS lens group on a plane perpendicular to the optical axis to counter the degree of image shake, the light rays reaching the image plane can be steadied. Since image shake occurs in both horizontal and vertical directions, two shake-detecting sensors for yaw and pitch detect the angle and speed of movement. This information is then sent to a high-speed 32-bit microcomputer, which converts the information into drive signals for the IS lens group. Then the actuator moves the IS lens group horizontally and vertically thus counteracting the image shake and maintaining the stable picture. The Shift-IS component is located within the lens group and is most effective for lower frequency movements caused by platform vibration or wind effect without increasing the overall size and weight of the master lens.



UHD DIGISUPER 86
UHD DIGISUPER 90
Page 16



DIGISUPER 100AF
DIGISUPER 100
DIGISUPER 95 TELE
Page 18



DIGISUPER 95
DIGISUPER 86AF
DIGISUPER 80
Page 19



HJ40x10B IASD-V
HJ40x14B IASD-V
Page 27



HJ15ex8.5B KRSE-V
Page 29

THE HDTV LENS SERIES

Canon began developing lenses for the “HDTV System” more than 20 years ago. Canon was the first manufacturer to complete a standard series consisting of five basic models of practical 2/3” HDTV lenses by launching the HJ15x8B in 1997 in addition to four existing lenses: Standard, Tele, and Wide portable, as well as Studio/Field. Canon continues to lead the broadcast industry into the 21st century “DTV” era with the next generation of lens families, consisting of the following four HDTV Lens Series.



HDxs Series
Shown on pages 17-21 and 27.



STUDIO/FIELD LENSES



COMPACT STUDIO LENS



EFP LENSES



HDXS
Portable HDxs Series
Shown on pages 26-30.



ENG/EFP Lenses



**Built-in
Optical Image Stabilizer Lens**



HDGC
HDgc Series
Shown on pages 31-34.



ENG Lenses for 2/3" Cameras



ENG Lenses for 1/2" Cameras



ENG Lenses for 1/3" Cameras

OVERALL COMPARISON: SDTV VS HDTV

Whereas one frame of the conventional SDTV (ie: NTSC) system consists of 480 scanning lines, the number of scanning lines is more than 1.5 times that for the HDTV system. Furthermore, the density of the scanning lines are even higher because the HDTV system has an aspect ratio of 16:9, which is wider and shorter in height than that of the normal SDTV (4:3 aspect ratio) system. The spatial frequency required for the HDTV system is about twice that required for the NTSC system.

Overall, the resolution of the HDTV system is about twice that of the NTSC system and therefore, the lens requires much higher performance than the conventional lenses.

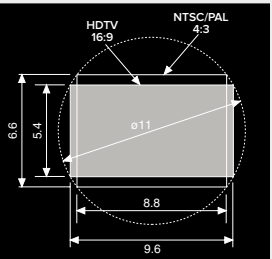
2/3"	HDTV	NTSC
Image Format	9.6 x 5.4	8.8 x 6.6
Nominal Frequency	600 TVL	400 TVL
Spatial Frequency	55 Line pairs/mm	30 Line pairs/mm

HDTV DEPTH OF FIELD

As the HDTV system has high resolution, even a small out-of-focus area can be detected. Since the radius of the permissible circle of confusion is about half that of the conventional system, the depth of field becomes proportionately smaller. Therefore, the focusing has to be done with great care.

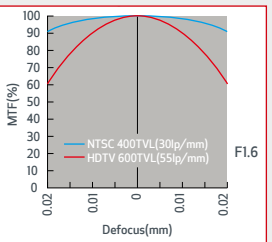
HDTV SENSITIVITY

Two factors have to be considered to compare the sensitivity of the HDTV system with that of the conventional system. The first factor is that the HD camera has an aspect ratio of 16:9. This makes the sensitive area smaller and causes a 10% difference in sensitivity. The second factor is related to the HDTV system's depth of field, which is half of the conventional system. Therefore, on HD cameras, the lenses must be stopped down until their F-number becomes double in order to get the same depth of field as that in the conventional system. This reduces the sensitivity to one fourth (1/4).



HDTV ABERRATION CORRECTION

The pixel size is about half in the HDTV system, and therefore the spread of a point image caused by a spherical aberration should be diminished to about half. Even if the image is slightly out of focus, MTF is greatly influenced.



The graph shows how MTF varies when the focus changes. Canon HDxs Series lenses employ the HD version of the Power Optical System, which incorporates the X-Element. HDxs greatly contributes to help correct and minimize these aberrations in a compact lightweight lens body.

4K UHD TECHNOLOGY

NEW BCTV LENSES DESIGNED TO ACCELERATE THE PACE OF 4K UHD CONTENT CREATION

As 4K continues its steady integration into mainstream television dramas, documentaries, and movies, Canon has worked to be at the technological forefront with its innovative Cinema EOS series and development of 4K Optics. The needs of broadcast television producers to achieve the high image quality of 4K UHD and more powerful ways of expression are now spreading to live telecasts of sports, concerts, and events. The imperative need for 4K lenses that can offer the long focal ranges that are central to contemporary sports coverage while maintaining the usability and ease of operation that the broadcast industry favors, is increasing at a rapid pace. In response to these new marketplace needs, Canon is offering lenses whose performance neatly dovetails with the various new 2/3” small-format 4K UHD cameras as part of its onward drive to support this new movement. By offering lenses that fit in with the applications and objectives of users, Canon is taking steps to actively open up new dimensions of potential in video performance. 4K images can convey such a sense of presence and an almost 3-dimensional feeling that viewers sense they are actually involved in the action; through such images, these lenses can impart new values to user content and allow viewers to experience videos in new and fresh ways.

CANON'S TECHNOLOGIES THAT ACHIEVE 4K

Each 2/3” small-format 4K pixel is equivalent to approximately 2.5µm, which is one-half of the size of the 2/3” HD pixels. These are approximately 1/2.7 smaller than the pixel size of the 4K Super 35mm image sensor. This means that, for these lenses, it is extremely important to establish the high-grade design and production technologies that will help ensure the requisite 4K UHD image sharpness while minimizing optical aberrations. Described below are the latest technologies Canon has developed and is utilizing to achieve these goals.

UHD ZOOM LENS

DESIGNED TO SUPPORT 4K UHD BROADCAST SYSTEMS AND DELIVER SUPERB OPTICAL PERFORMANCE

WHAT ARE CANON'S UHD LENSES?

The optical designs of Canon's HD lenses do full justice to UHD imagery, having four times the spatial resolution of a standard HDTV system. The associated stunning image sharpness is created by the combination of the remarkable contrast that Canon's multilayer optical coatings provide, and superb resolution from the central picture region out to the image extremities.

Canon's UHD Series lenses are the most high performance lenses among Canon's BCTV lenses. Canon's proprietary optical coatings help facilitate the vibrant color reproduction expected from the UHD wide color gamut specifications, while simultaneously providing excellent tonal reproduction. A variety of proprietary design techniques helps ensure preservation of these performance levels across the entire focal range of these remarkable zoom lenses.

WHAT IS “4K PREMIUM”?

“4K Premium” refers to the flagship line of Canon's UHD series lenses that exceed standard 4K optical quality expectations. Specifically, the central image sharpness is extremely high and traditional optical aberrations are virtually invisible. The very high contrast ratio helps produce deep rich black levels and superb reproduction of scene detail in shadowed areas. This lens is ideal when used in an HDR (high dynamic range) and WCG (wide color gamut) 4K UHD image acquisition system.



DIGITAL CINEMA LENSES

Cinema lenses used to shoot movies that are loved around the world must offer superb optical performance, not only because those movies are projected on the big screen, but also because filmmakers demand rich color gradation that only cinema production can offer. The technology behind Canon's EF and PL mount Cinema lenses can bring clear, crisp motion capture to even the most demanding shoots. As more filmmakers move to digital cinema production and manufacturers develop larger image sensors and introduce higher resolutions, these lenses must satisfy even higher standards of quality. The Canon product line now includes compact, lightweight zoom lenses with outstanding optical performance with either PL or EF mounts for use with cameras of many manufacturers, offering superb performance in movie and video production.

CINEMA LENS FAMILY OVERVIEW

Canon's broad line of Cinema lenses consists of five series:

- Zoom Lens Series
- Compact Zoom Lens Series
- Prime Lens Series
- CINE-SERVO Series
- COMPACT-SERVO Series



MAIN FEATURES

OUTSTANDING HIGH OPTICAL PERFORMANCE

With the use of the latest optical design technology and new optical materials, Canon has succeeded in reducing chromatic aberration, ghosting, and flares while maintaining high MTF, high resolution, and high contrast from the center of the image to its extreme edges. The lenses are compatible with industry-standard Super 35mm equivalent image sensors, and ready for cameras that record at 4K (4,096x2,160) resolution. (Fixed focal length Prime lenses are compatible with full-size 35mm sensors.)

HIGH OPERABILITY

Picture quality and the mechanics of the full manual CN-E series lenses are designed to meet the special demands of the cinema industry.

- Control rings maintain the right amount of resistance, with consistent torque for smooth operation.
- Remarkably broad rotation angle of focus (300°) achieves high accuracy in operating the lens.
- Focus, Zoom, and Iris markings are provided on angled surfaces. These markings are easier to read from behind the camera.

11-BLADE IRIS

Halos from points of light at night or from rays of sunlight in shots that show the sun take on the appearance of the Iris blades. The additional blades make the Iris aperture look circular even when the Iris is contracted, enabling beautiful, round highlight bokeh.

CINE-SERVO SERIES

Designed for both Cinema and Broadcast applications, the lens comes equipped with a removable Servo Drive Unit that allows servo operation of Zoom, Focus, and Iris.

COMPACT-SERVO SERIES

The COMPACT-SERVO combines the benefits of compact size and light weight for improved mobility. To support diverse video styles, the lens comes with a Servo Drive Unit for Zoom, Focus, and Iris control.

4K UHD LENS SERIES



Horizontal Field of View (16:9)		96.3	63.2	56.1	54.6	10.5	3.5	.69	.68		
Focal Length (mm)		4.3	6.5	7.8	9	9.3	52	156	180	800	810
BOX LENS	UJ86x9.3B	Premium UHD Telephoto Field Lens									
	UJ90x9B	UHD Telephoto Field Lens									
	UJ27x6.5B	UHDxs Wide-Angle Lens									
PORTABLE LENS	CJ12ex4.3B	UHDxs Multi-Purpose Zoom Lens									
	CJ20ex7.8B	UHDxs Wide-Angle Lens									

- Canon introduces the 4K UHD DIGISUPER Series.
- Refer to page 13 regarding 4K UHD technology and features.
- Step up to 4K broadcasting with fully-featured high-quality 2/3" 4K filed zoom lenses.
- Refer to page 16 regarding 4K UHDxs Series lenses for portable cameras.
- Upgrade to 4K ENG and studio applications with high quality 2/3" 4K wide and standard zoom lenses, see pages 13 and 16 for details.

4K UHD LENSES

Field Box

Portable



		UHD DIGISUPER 86	UHD DIGISUPER 90	UHD DIGISUPER 27	UHDxs CJ20ex7.8B	UHDxs CJ12ex4.3B
Model Number		UJ86x9.3B	UJ90x9B	UJ27x6.5B	CJ20ex7.8B	CJ12ex4.3B
Zoom Ratio		86X	90x	27x	20x	12x
Built-in Extender		2.0x	2.0x	2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		9.3 ~ 800mm 18.6 ~ 1600mm (2.0x)	9 ~ 810mm 18 ~ 1620mm (2.0x)	6.5 ~ 180mm 13 ~ 360mm (2.0x)	7.8-156mm 15.6-312mm (2.0x)	4.3 ~ 52mm 8.6 ~ 104mm (2.0x)
Maximum Relative Aperture (with Extender)		1:1.7 at 9.3 ~ 340mm 1:4.0 at 800mm 1:3.4 at 18.6-680mm (2.0x) 1:8.0 at 1600mm	1:2.4 at 9 ~ 486mm 1:4.0 at 810mm 1:4.8 at 18 ~ 972mm (2.0x) 1:8.0 at 1620mm	1:1.5 at 6.5 ~ 123mm 1:2.2 at 180mm 1:3.0 at 13 ~ 246mm (2.0x) 1:4.4 at 360mm	1:1.8 at 7.8 ~ 108mm 1:2.6 at 156mm 1:3.6 at 15.6 ~ 216mm (2.0x) 1:5.2 at 312mm	1:1.8 at 4.3 ~ 40mm 1:2.4 at 52mm 1:3.6 at 8.6 ~ 80mm (2.0x) 1:4.8 at 104mm
Angular Field of View (with Extender)	16:9 Aspect Ratio (9.6x5.4mm)	54.6°x32.4° at 9.3mm 0.69°x0.39° at 800mm 28.9°x16.5° at 18.6mm (2.0x) 0.34°x0.19° at 1600mm	56.1°x33.4° at 9mm 0.68°x0.38° at 810mm 29.9°x17.1° at 18mm (2.0x) 0.34°x0.19° at 1620mm	3.1°x1.7° at 180mm 40.5°x23.5° at 13mm (2.0x) 1.54°x0.9° at 360mm	63.2°x38.2° at 7.8mm 3.5°x 2.0° at 156mm 34.2°x19.6° at 15.6mm (2.0x) 1.8°x1.0° at 312mm	96.3°x64.2° at 4.3mm 10.5°x5.9° at 52mm 58.3°x34.9° at 8.6mm (2.0x) 5.3°x3.0° at 104mm
M.O.D.* from Lens Front		3.0m	3.0m	0.6m	0.80m (10mm with Macro)	0.30m (10mm with Macro)
Object Dimensions at M.O.D.* (with Extender)	16:9 Aspect Ratio (9.6x5.4mm)	271.9x152.9cm at 9.3mm 3.3x1.9cm at 800mm 136.0x76.5cm at 18.6mm (2.0x) 1.7x1.0cm at 1600mm	287.9x161.9cm at 9mm 3.3x1.9cm at 810mm 144.0x81.0cm at 18mm (2.0x) 1.7x1.0cm at 1620mm	106.1x59.7cm at 6.5mm 3.8x2.1cm at 180mm 53.1x29.9cm at 13mm (2.0x) 1.9x1.1cm at 360mm	91.7x51.6cm at 7.8mm 4.8x2.7cm at 156mm 45.9x25.9cm at 15.6mm (2.0x) 2.4x1.4cm at 312mm	76.4x43.0cm at 4.3mm 6.0x3.4cm at 52mm 38.2x21.5cm at 8.6mm (2.0x) 3.0x1.7cm at 104mm
Approx. Size (WxHxL)		9.9x10x25 in. (250.6x255.5x610mm)	9.9x10x24 in. (250.6x255.5x610mm)	9.9x10.1x21.7 in. (250.6x255.5x550mm)	6.7x4.5x9.1 in. (169.9x114.4x230mm)	6.4x4.3x9.8 in. (163.5x108x247.8mm)
Approx. Weight		59.5 lbs (27kg)	51.2 lbs (23.2kg)	47.4 lbs (21.5kg)	4.81 lbs (2.18kg)	4.63 lbs (2.1kg)
Macro		—	—	—	✓	✓
Protection Filter		✓	Optional	Optional	—	—
Built-in Optical Image Stabilizer		✓	✓	—	—	—
Crossover Type		—	—	—	—	—
Auto Focus System		—	—	—	—	—

✓ Standard — Not Applicable
*M.O.D. = Minimum Object Distance.
• Please refer to page 13 for more information on 4K UHD lenses.

HDTV BOX LENSES



Horizontal Field of View (16:9)		72.9	66.7	58.3	53.1	56.1	54.6	42.3	3.4	1.02	.73	.71	.67	.59	.47
Focal Length (mm)		6.5	7.3	8.6	8.8	9	9.3	12.4	161	540	690	710	820	930	1178
STUDIO LENS	XJ22x7.3B	Compact Studio Lens													
	XJ27x6.5B	Wide Angle Studio Lens													
	XJ27x6.5B AF	Wide Angle Studio Lens with Advanced Auto Focus Function													
FIELD LENS	XJ60x9B	Affordable Field Lens													
	XJ76x9B	Standard Field Lens with Superb Quality and Performance													
	XJ80x8.8B	Premium Field Lens with Superb Quality and Advanced Image Stabilizer													
	XJ86x9.3B AF	Telephoto Field Lens with Auto Focus and Advanced Image Stabilizer													
	XJ95x8.6B	Telephoto Field Lens with Advanced Image Stabilizer													
	XJ95x12.4B	Ultra Telephoto Lens with Advanced IS													
	XJ100x9.3B	Flagship Field Lens with Image Stabilizer													
	XJ100x9.3B AF	Flagship Field Lens with Auto Focus and Image Stabilizer													

• Please refer to page 12 regarding the difference between HDTV and SDTV lenses. Please note that the HDTV lenses perform excellently when they are used on SDTV cameras.
• The DIGISUPER series lenses are controlled by Canon's ground breaking Digital Servo System. Please refer to pages 22-23 for details.
• The DIGISUPER 22 xs is a studio lens based on a new concept to be used with portable cameras. Please refer to page 21 for details.

HDTV BOX LENSES

HDTV



		DIGISUPER 100AF	DIGISUPER 100	DIGISUPER 95 TELE
Model Number		XJ100x9.3B AF	XJ100x9.3B	XJ95x12.4B
Zoom Ratio		100x	100x	95x
Built-in Extender		2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		9.3~930mm 18.6~1860mm	9.3~930mm 18.6~1860mm (2.0x)	12.4~1178 24.8~2356mm (2.0x)
Maximum Relative Aperture (with Extender)		1:1.7 at 9.3~296mm 1:4.7 at 930mm 1:3.4 at 18.6~592mm (2.0x) 1:9.4 at 1860mm	1:1.7 at 9.3~296mm 1:4.7 at 930mm 1:3.4 at 18.6~592mm (2.0x) 1:9.4 at 1860mm	1:2.5 at 12.4~491mm 1:6.0 at 1178mm 1:5.0 at 24.8~982mm (2.0x) 1:12.0 at 2356mm
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	50.6°x39.1° at 9.3mm 0.54°x0.41° at 930mm 26.6°x20.1° at 18.6mm (2.0x) 0.27°x0.20° at 1860mm	50.6°x39.1° at 9.3mm 0.54°x0.41° at 930mm 26.6°x20.1° at 18.6mm (2.0x) 0.27°x0.20° at 1860mm	39.1°x29.8° at 12.4mm 0.43°x0.32° at 1178mm 20.1°x15.2° at 24.8mm (2.0x) 0.21°x0.16° at 2356mm
	16:9 Aspect Ratio (9.6x5.4mm)	54.6°x32.4° at 9.3mm 0.59°x0.33° at 930mm 28.9°x16.5° at 18.6mm (2.0x) 0.30°x0.17° at 1860mm	54.6°x32.4° at 9.3mm 0.59°x0.33° at 930mm 28.9°x16.5° at 18.6mm (2.0x) 0.30°x0.17° at 1860mm	42.3°x24.6° at 12.4mm 0.47°x0.26° at 1178mm 21.9°x12.4° at 24.8mm (2.0x) 0.23°x0.13° at 2356mm
M.O.D.* from Lens Front		3.0m	3.0m	3.0m
Object Dimensions at M.O.D.* (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	253.9x190.4cm at 9.3mm 2.54x1.90cm at 930mm 127.0x95.2cm at 18.6mm (2.0x) 1.27x0.95cm at 1860mm	253.9x190.4cm at 9.3mm 2.54x1.90cm at 930mm 127.0x95.2cm at 18.6mm (2.0x) 1.27x0.95cm at 1860mm	191.9x143.9cm at 12.4mm 2.1x1.6cm at 1178mm 96x72.0cm at 24.8mm (2.0x) 1.1x0.8cm at 2356mm
	16:9 Aspect Ratio (9.6x5.4mm)	276.4x155.5cm at 9.3mm 2.76x1.56cm at 930mm 138.2x77.8cm at 18.6mm (2.0x) 1.38x0.78cm at 1860mm	276.4x155.5cm at 9.3mm 2.76x1.56cm at 930mm 138.2x77.8cm at 18.6mm (2.0x) 1.38x0.78cm at 1860mm	209.5x117.8cm at 12.4mm 2.3x1.3cm at 1178mm 104.8x58.9cm at 24.8mm (2.0x) 1.2x0.7cm at 2356mm
Approx. Size (WxHxL)		9.9x10x26 in. (250.6x255.5x661.5mm)	9.9x10x24 in. (250.6x255.5x610mm)	9.9x10x24 in. (250.6x255.5x610mm)
Approx. Weight		59.3 lbs (26.8kg)	51.8 lbs (23.5kg)	51.1 lbs (23.2kg)
Macro		—	—	—
Protection Filter		✓	✓	✓
Built-in Optical Image Stabilizer		✓	✓	✓
Crossover Type		—	—	—
Auto Focus System		✓	—	—

✓ Standard — Not Applicable

*M.O.D. = Minimum Object Distance.

• Please refer to page 12, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adapted to SDTV cameras.

• Black lens shrouds are available as an alternative to white lens shrouds.

HDTV BOX LENSES



DIGISUPER 95	DIGISUPER 86AF	DIGISUPER 80	DIGISUPER 76
XJ95x8.6B	XJ86x9.3B AF	XJ80x8.8B	XJ76x9B
95x	86x	80x	76x
2.0x	2.0x	2.0x	2.0x
8.6~820mm 17.2~1640mm (2.0x)	9.3~800mm 18.6~1600mm (2.0x)	8.8~710mm 17.6~1420mm (2.0x)	9~690mm 18~1380mm (2.0x)
1:1.7 at 8.6~340mm 1:4.1 at 820mm 1:3.4 at 17.2~680mm (2.0x) 1:8.2 at 1640mm	1:1.7 at 9.3~340mm 1:4.0 at 800mm 1:3.4 at 18.6~680mm (2.0x) 1:8.0 at 1600mm	1:1.7 at 8.8~340mm 1:3.55 at 710mm 1:3.4 at 17.6~680mm (2.0x) 1:7.1 at 1420mm	1:1.7 at 9~340mm 1:3.45 at 690mm 1:3.4 at 18~680mm (2.0x) 1:6.9 at 1380mm
54.2°x42.0° at 8.6mm 0.61°x0.46° at 820mm 28.7°x21.7° at 17.2mm (2.0x) 0.31°x0.23° at 1640mm	50.6°x39.1° at 9.3mm 0.63°x0.47° at 800mm 26.6°x20.1° at 18.6mm (2.0x) 0.32°x0.24° at 1600mm	53.1°x41.1° at 8.8mm 0.71°x0.53° at 710mm 28.1°x21.2° at 17.6mm (2.0x) 0.36°x0.27° at 1420mm	52.1°x40.3° at 9mm 0.73°x0.55° at 690mm 27.5°x20.8° at 18mm (2.0x) 0.37°x0.27° at 1380mm
58.3°x34.9° at 8.6mm 0.67°x0.38° at 820mm 31.2°x17.8° at 17.2mm (2.0x) 0.34°x0.19° at 1640mm	54.6°x32.4° at 9.3mm 0.69°x0.39° at 800mm 28.9°x16.5° at 18.6mm (2.0x) 0.34°x0.19° at 1600mm	57.2°x34.1° at 8.8mm 0.77°x0.44° at 710mm 30.5°x17.4° at 17.6mm (2.0x) 0.39°x0.22° at 1420mm	56.1°x33.4° at 9mm 0.80°x0.45° at 690mm 29.9°x17.1° at 18mm (2.0x) 0.40°x0.22° at 1380mm
3.0m	3.0m	3.0m	3.0m
274.1x205.6cm at 8.6mm 3.0x2.3cm at 820mm 137.1x102.8cm at 17.2mm (2.0x) 1.5x1.2cm at 1640mm	253.9x190.4cm at 9.3mm 2.8x2.1cm at 800mm 127.0x95.2cm at 18.6mm (2.0x) 3.2x1.8cm at 800mm	266.8x200.1cm at 8.8mm 3.4x2.6cm at 710mm 133.4x100.1cm at 17.6mm (2.0x) 1.7x1.3cm at 1420mm	259.9x194.9cm at 9mm 3.5x2.6cm at 690mm 130.0x97.5cm at 18mm (2.0x) 1.8x1.3cm at 1380mm
298.1x167.7cm at 8.6mm 3.2x1.8cm at 820mm 149.1x83.9cm at 17.2mm (2.0x) 1.6x0.9cm at 1640mm	276.4x155.5cm at 9.3mm 3.2x1.8cm at 800mm 138.2x77.8cm at 18.6mm (2.0x) 1.6x0.9cm at 1600mm	290.0x163.1cm at 8.8mm 3.7x2.1cm at 710mm 145.0x81.6cm at 17.6mm (2.0x) 1.9x1.1cm at 1420mm	282.4x158.9cm at 9mm 3.8x2.1cm at 690mm 141.2x79.5cm at 18mm (2.0x) 1.9x1.1cm at 1380mm
9.9x10x24 in. (250.6x255.5x610mm)	9.9x10x26 in. (250.6x255.5x661.5mm)	9.9x10x24 in. (250.6x255.5x610mm)	9.9x10x24 in. (250.6x255.5x610mm)
51.1 lbs (23.2kg)	59.3 lbs (26.8kg)	51.1 lbs (23.2kg)	50.6 lbs (23.0kg)
—	—	—	—
✓	✓	Optional	Optional
✓	✓	✓	—
—	—	—	—
—	✓	—	—

✓ Standard — Not Applicable

*M.O.D. = Minimum Object Distance.

• Please refer to page 12, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adapted to SDTV cameras.

• Black lens shrouds are available as an alternative to white lens shrouds.

HDTV BOX LENSES

HDTV



		DIGISUPER 60 xs	DIGISUPER 27AF	DIGISUPER 27
Model Number		XJ60x9B IE-D	XJ27x6.5B AF	XJ27x6.5B
Zoom Ratio		60x	27x	27x
Built-in Extender		2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		9~540mm 18-1080mm (2.0x)	6.5~180mm 13~360mm (2.0x)	6.5~180mm 13~360mm (2.0x)
Maximum Relative Aperture (with Extender)		1:1.7 at 9~306mm 1:3.0 at 540mm 1:3.4 at 18~612mm (2.0x) 1:6.0 at 1080mm (2.0x)	1:1.5 at 6.5~123mm 1:2.2 at 180mm 1:3.0 at 13~246mm (2.0x) 1:4.4 at 360mm (2.0x)	1:1.5 at 6.5~123mm 1:2.2 at 180mm 1:3.0 at 13~246mm (2.0x) 1:4.4 at 360mm (2.0x)
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	52.1°x40.3° at 9mm 0.93°x0.70° at 540mm 27.5°x20.8° at 18mm (2.0x) 0.47°x0.35° at 1080mm (2.0x)	68.2°x53.8° at 6.5mm 2.8°x2.1° at 180mm 37.4°x28.5° at 13mm (2.0x) 1.4°x1.1° at 360mm (2.0x)	68.2°x53.8° at 6.5mm 2.8°x2.1° at 180mm 37.4°x28.5° at 13mm (2.0x) 1.4°x1.1° at 360mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	56.1°x33.4° at 9mm 1.02°x0.57° at 540mm 29.9°x17.1° at 18mm (2.0x) 0.51°x0.29° at 1080mm (2.0x)	72.9°x45.1° at 6.5mm 3.1°x1.7° at 180mm 40.5°x23.5° at 13mm (2.0x) 1.5°x0.9° at 360mm (2.0x)	72.9°x45.1° at 6.5mm 3.1°x1.7° at 180mm 40.5°x23.5° at 13mm (2.0x) 1.5°x0.9° at 360mm (2.0x)
M.O.D.* from Lens Front		2.8m	0.6m (10mm with Macro)	0.6m (10mm with Macro)
Object Dimensions at M.O.D.* (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	243.8x182.9cm at 9mm 4.1x3.1cm at 540mm 121.9x91.5cm at 18mm (2.0x) 2.1x1.6cm at 1080mm (2.0x)	97.0x72.8cm at 6.5mm 3.5x2.6cm at 180mm 48.5x36.4cm at 13mm (2.0x) 1.8x1.3cm at 360mm (2.0x)	97.0x72.8cm at 6.5mm 3.5x2.6cm at 180mm 48.5x36.4cm at 13mm (2.0x) 1.8x1.3cm at 360mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	265.1x149.1cm at 9mm 4.5x2.5cm at 540mm 132.6x74.6cm at 18mm (2.0x) 2.3x1.3cm at 1080mm (2.0x)	106.1x59.7cm at 6.5mm 3.8x2.1cm at 180mm 53.1x29.9cm at 13mm (2.0x) 1.9x1.1cm at 360mm (2.0x)	106.1x59.7cm at 6.5mm 3.8x2.1cm at 180mm 53.1x29.9cm at 13mm (2.0x) 1.9x1.1cm at 360mm (2.0x)
Approx. Size (WxHxL)		9.9x10.1x21.6 in. (250.6x255.5x547.8mm)	9.9x10.1x22.3 in. (250.6x255.5x567mm)	9.9x10.1x21.7 in. (250.6x255.5x550mm)
Approx. Weight		43.8 lbs (19.9kg)	51.4 lbs (23.3kg)	48.3 lbs (21.9kg)
Macro		—	Optional (Remote)	Optional (Remote)
Protection Filter		Optional	Optional	Optional
Built-in Optical Image Stabilizer		—	—	—
Crossover Type		Optional	—	Optional
Auto Focus System		—	✓	—

✓ Standard — Not Applicable

*M.O.D. = Minimum Object Distance.

• Please refer to page 12, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adapted to SDTV cameras.

• Black lens shrouds are available as an alternative to white lens shrouds.

HDTV BOX LENSES

COMPACT STUDIO LENS



		DIGISUPER 22 xs
Model Number		XJ22x7.3B IE-D
Zoom Ratio		22x
Built-in Extender		2.0x
Range of Focal Length (with Extender)		7.3~161mm 14.6~322mm (2.0x)
Maximum Relative Aperture (with Extender)		1:1.8 at 7.3~111.5mm 1:2.6 at 161mm 1:3.6 at 14.6~223mm (2.0x) 1:5.2 at 322mm (2.0x)
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	62.2°x48.7° at 7.3mm 3.1°x2.3° at 161mm 33.5°x25.5° at 14.6mm (2.0x) 1.6°x1.2° at 322mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	66.7°x40.6° at 7.3mm 3.4°x1.9° at 161mm 36.4°x21.0° at 14.6mm (2.0x) 1.7°x1.0° at 322mm (2.0x)
M.O.D.* from Lens Front		0.8m (10mm with Macro)
Object Dimensions at M.O.D.* (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	107.8x80.9cm at 7.3mm 4.8x3.6cm at 161mm 53.9 x 40.5cm at 14.6mm (2.0x) 2.4 x 1.8cm at 322mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	118.1x66.4cm at 7.3mm 5.2x2.9cm at 161mm 59.1 x 33.2cm at 14.6mm (2.0x) 2.6 x 1.5cm at 322mm (2.0x)
Approx. Size (WxHxL)		6.5x6.9x13.2 in. (165x175x336mm)
Approx. Weight		13.42 lbs (6.1kg)
Macro		Standard (Manual)
Protection Filter		—
Built-in Optical Image Stabilizer		—
Crossover Type		Optional
Auto Focus System		—

✓ Standard — Not Applicable

*M.O.D. = Minimum Object Distance.

• Please refer to page 12, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adapted to SDTV cameras.

COMPACT STUDIO LENS:

DIGISUPER 22 xs

The DIGISUPER 22 xs is a “Compact HD Studio Lens” which was specifically designed to be used with a portable camera.



DIGISUPER 22 xs

By adopting technologies developed from Canon's long history, the DIGISUPER 22 xs is outstanding in both optical performance and ease of operation, compared with HD portable lenses as well as all previous SD Studio Box Type lenses.

HIGH OPTICAL PERFORMANCE

The DIGISUPER 22 xs offers higher contrast and resolution compared with Canon's portable lenses and at the same time, reduces the Focus Breathing to a zero level.

SMALL IN SIZE, LIGHT IN WEIGHT

In order to realize the best capabilities from the camera-lens combination, the lens was specifically designed to be as small and light as possible.

ADVANCED OPERATION

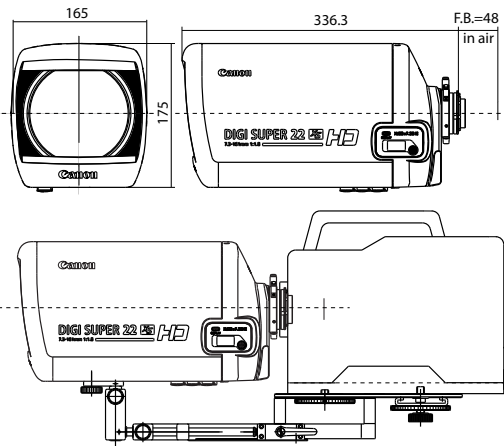
By adopting the “Encoder Device,” it has capable features to zoom from a very fast 0.5 sec. to a very slow 5 min. and at the same time, it makes the Zoom, Focus, and Iris control precise and repeatable. Also, the new encoder device enables the lens to be easily integrated into virtual studio applications.

DIVERSE FUNCTIONS



The DIGISUPER 22 xs is equipped with an information display, which will enable you to use diverse digital functions, easily and precisely.

DIMENSIONS



The SUP-400 supporter for the DIGISUPER 22 xs is included as a standard component with the lens.

FEATURES: UHD DIGISUPER/DIGISUPER LENSES

The latest version of the UHD DIGISUPER/DIGISUPER series Studio/Field lenses are developed with advanced technologies, while keeping in mind possible future production style. In the DIGISUPER series, the Focus and the Zoom servo systems are digital using a 32-bit CPU as opposed to the conventional analog system. The second generation of Digital Servo offers functions that were not possible before and the ability to upgrade the CPU for new features and unlimited possibilities in the future. (The main features can be seen below.)

(Digital Servo System is available for UHD DIGISUPER 86, UHD DIGISUPER 90, DIGISUPER 100, DIGISUPER 100AF, DIGISUPER 95 TELE, DIGISUPER 95, DIGISUPER 86AF, DIGISUPER 80, DIGISUPER 76, DIGISUPER 60 xs, DIGISUPER 27AF, and DIGISUPER 27.)

FEATURES OF THE LATEST UHD DIGISUPER/DIGISUPER SERIES LENS AND THE ZDJ-D02, DIGITAL SERVO ZOOM DEMAND

SHUTTLE SHOT AND FRAME PRESET

Unlike Digital Drive in the portable lenses, two preset memories are available in any combination of Shuttle Shot and Frame Preset.

SHUTTLE SHOT

At the touch of a button, this feature allows the operator to zoom back and forth instantly between any two positions at the maximum speed or at any desired speed memorized in the speed preset function in either direction. It can be used for zooming to either the tele-side or wider focal length from any starting point to check the picture, then return instantly to the original focal length. You can "shuttle" between any two zoom positions as you like.



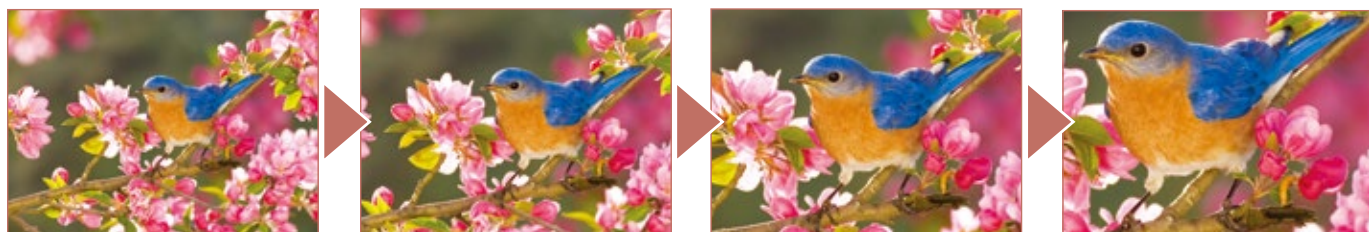
FRAME PRESET

A movement to a preset position can, again, be repeated multiple times. The preset memory is not automatically cleared and the agreed-on framings from rehearsal can be duplicated over and over in an actual production at the maximum speed or at any desired speed memorized in the speed preset function.



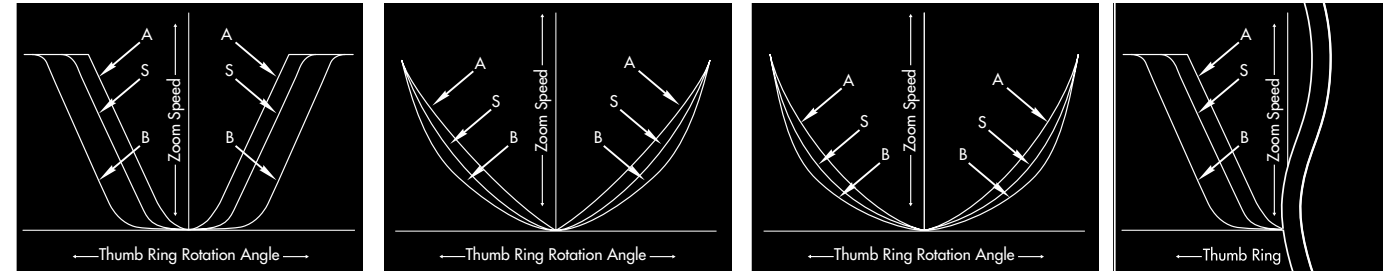
SPEED PRESET

A zoom speed agreed on during rehearsal can be reproduced accurately. The preset memory is not automatically cleared and can be repeated as many times as needed.



ZOOM SERVO CHARACTERISTICS SELECTION

Zoom Servo characteristics can be selected from several groups of provided curvatures by setting the mode from the ZDJ-D02 operation panel. Within each group, one of three specific curvatures can be easily chosen by a toggle switch located near the zoom handle.



ZOOM TRACK

The Zoom Control Range can be restricted. In a conventional analog system, the same function can be set within a limited range (both the Tele and Wide ends are within a limited area). With the latest UHD DIGISUPER/DIGISUPER series and the optional ZDJ-D02 system, the range can be virtually set at any position used in a production. If desired, this function can be used to memorize an additional preset zoom position to be used during a production.

"AUX" SWITCH FUNCTION ASSIGNMENT

One of following functions can be assigned to the AUX switch on the ZDJ-D02:

1. Image Stabilizer: To activate/stop the built-in Shift-IS function. (Ref: page 11)
2. F. Hold: To limit the zoom range to a consistent F-number and to stop at the point of F-drop (Ramping).
3. Video Return Off: If desired, the "AUX" switch can be assigned the function of disabling the video return switch on the demand.

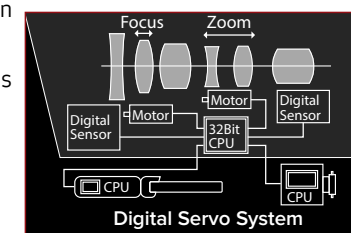
FEATURES OF THE ZDJ-P01 DIGITAL SERVO ZOOM DEMAND FOR THE LATEST UHD DIGISUPER/DIGISUPER SERIES ZOOM

In addition to Canon's optional ZDJ-D02, there is an introduction of an optional compact zoom demand, the ZDJ-P01. In comparison, the ZDJ-P01 is smaller in size and designed to enhance usability and heighten ease of operation. When used with the latest DIGISUPER series zoom lens, it allows for creative use of the Digital Zoom Functions, such as the Frame Preset Function and Zoom Track Function. As well as these great features, the ZDJ-P01 is a more affordable option and allows for a cost effective control system.



CONSTANT ANGLE FOCUSING SYSTEM (CAFS)

The Zooming Effect of Focus is the phenomenon where the picture size (angle of view) changes when focusing. However, a 32-bit CPU calculates and controls the zoom when focusing in order to counteract this phenomenon. Thus, the UHD DIGISUPER/DIGISUPER series has Zero Zooming Effect of Focus.



OTHER FEATURES

INTERFACE TO OTHER DIGITAL TECHNOLOGY

The Digital Servo System is capable of providing high-speed interactive communication with a virtual studio computer or robotics without D/A or A/D conversion to allow accurate control.

PC CONNECTION

By using the Digital Communication interface on the lens and optional software, a personal computer system can be connected to the lens and used for lens condition.

CPU UPGRADE

When new additional features are available through updated software, the lens can be updated to the latest version simply by overwriting the software in the 32bit CPU.

HIGH SPEED

High Speed and high repeatability (zoom: 0.5 sec, focus: 0.8 sec in case of the DIGISUPER 27).

AUTO FOCUS FUNCTION

Canon's unique Auto Focusing System has been adapted to the DIGISUPER 100AF, DIGISUPER 86AF, and DIGISUPER 27AF.

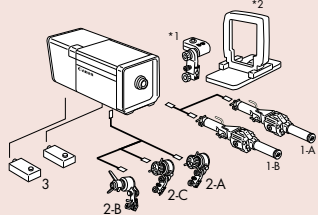
(Please refer to page 7 for details.)

CONTROL ACCESSORIES FOR STUDIO/FIELD LENSES

DIGITAL UHD DIGISUPER/DIGISUPER Series

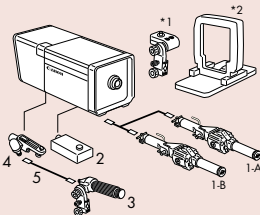
For:
UHD DIGISUPER 90 / UHD DIGISUPER 86 / DIGISUPER 100 / DIGISUPER 95 TELE / DIGISUPER 95 / DIGISUPER 80 /
DIGISUPER 76 / DIGISUPER 60xs / DIGISUPER 27

FULL SERVO SYSTEM



No.	DESCRIPTION	MODEL #
1-A.	Zoom Demand ZDJ-D02 (Digital Servo)	1822A066
1-B.	Zoom Demand ZDJ-P01 (Digital Servo)	1822A082
2-A.	Focus Demand FDJ-D02 (Digital Servo)	1822A065
2-B.	Focus Demand FDJ-D12 (Digital Servo)	1822A071
2-C.	Focus Demand FDJ-P01 (Digital Servo)	1822A081
3.	Servo Module SMJ-E01 (2pcs)	1822A077

SEMI-SERVO SYSTEM

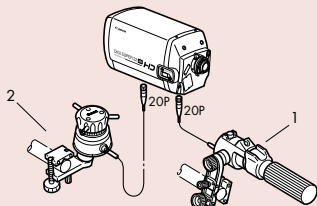


No.	DESCRIPTION	MODEL #
1-A.	Zoom Demand ZDJ-D02 (Digital Servo)	1822A066
1-B.	Zoom Demand ZDJ-P01 (Digital Servo)	1822A082
2.	Servo Module SMJ-E01	1822A077
3.	Flexible Focus Controller FFP-T61	1822A007
4.	Flexible Module FMJ-702	1822A072
5.	Flexible Cable 36"	—

CONTROL ACCESSORIES FOR STUDIO/FIELD LENSES

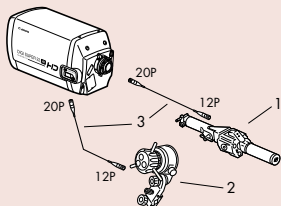
For:
DIGISUPER 22 xs
The DIGISUPER 22 xs can be used with our current optional Studio/Field lens controllers as well as those for our ENG lenses. At the same time, the lens also offers compatibility with our Compact Studio/Field demands by use of a conversion cable.

With Current ENG Demand (Standard)



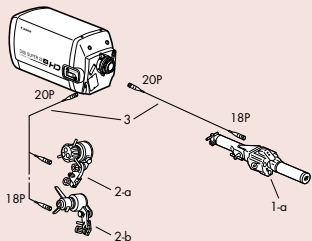
No.	DESCRIPTION	MODEL #
1	Digital Zoom Demand	ZSD-300D
2	Digital Focus Demand	FPD-400D

With Compact Field/Studio Demand



No.	DESCRIPTION	MODEL #
1	Digital Zoom Demand	ZDJ-P01
2	Digital Focus Demand	FDJ-P01
3	Conversion Cable	BDC-21

With Current Field/Studio Demand



No.	DESCRIPTION	MODEL #
1-a	Digital Zoom Demand	ZDJ-D02
2-a	Digital Focus Demand	FDJ-D02
2-b	Digital Focus Demand Propeller Type	FDJ-D12
3	Conversion Cable	BDC-11

The SUP-400 SUPPORTER is included as a standard component with the lens.

STUDIO/FIELD LENSES MOUNT COMPATIBILITY

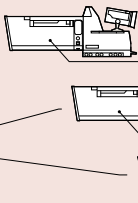
TO USE CAMERA MANUFACTURER'S ORIGINAL MOUNT LENS

Studio/Field lenses are made with mounts corresponding to each manufacturer's Studio/Field cameras. To make the lenses compatible with Portable Studio/Field Companion cameras, the correct lens Support System must be chosen from the following:

Standard HD Mount (BTA)

Panasonic, Ikegami, Hitachi, Thomson Grass Valley

Standard HD Mount Studio Camera Systems from Various Manufacturers

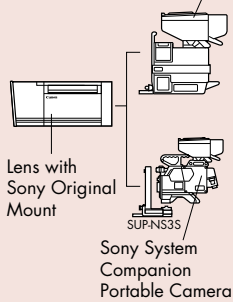


2/3" Portable Companion Cameras with Standard HD Mount System



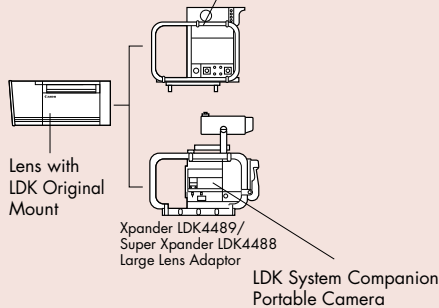
Sony

Sony 2/3" Studio Camera



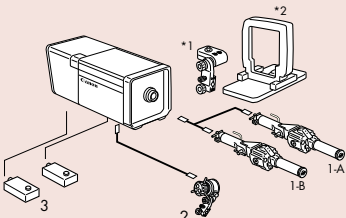
Thomson Grass Valley-SDTV

LDK 2/3" Studio Camera



For:
DIGISUPER 100AF / DIGISUPER 86AF / DIGISUPER 27AF

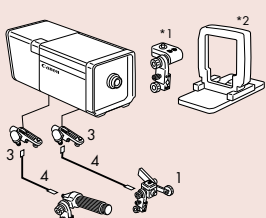
FULL SERVO SYSTEM



No.	DESCRIPTION	MODEL #
1-A.	Zoom Demand ZDJ-D02 (Digital Servo)	1822A066
1-B.	Zoom Demand ZDJ-P01 (Digital Servo)	1822A082
2.	Focus Demand FDJ-P31 (Digital Servo)*3	—
3.	Servo Module SMJ-E01 (2pcs)	1822A077

For:
All UHD DIGISUPER / DIGISUPER Lenses

FULL MANUAL SYSTEM



No.	DESCRIPTION	MODEL #
1.	Flexible Zoom Controller FZP-T61	1822A005
2.	Flexible Focus Controller FFP-T61	1822A007
3.	Flexible Module FMJ-702 (2pcs)	1822A072
4.	Flexible Cable 36" (2pcs)	—

*1: Switch Box is optionally available. The equivalent switches are integrated into Zoom Demands. It is recommended to have the Switch Box with Full Manual System.
*2: Lens Supporter is necessary for portable camera mounting. Some cameras need separate power supply for zoom and focus servo operation.
*3: For DIGISUPER 100AF, DIGISUPER 86AF, and DIGISUPER 27AF, FDJ-P31 is necessary to control the AF function. FDJ-P41 is also available for left hand users.
• Zoom Demand and Focus Demand with Pre-set Box is also available.
• For detail information, please contact a Canon Sales Office.

HDTV PORTABLE LENSES (2/3")



Horizontal Field of View (16:9)		96.3	93.7		65.2	64.6	58.9	51.3	47.1	37.8	35.5	19.6	11	9.1		4.3	4.0	3.5	3.3	3.1	1.43	1.4	1.1	1.05	1						
(4:3)		91.3	88.7		60.8	60.1	54.7	47.5	43.6	34.9	32.7	18	10.1	8.4			3.7	3.2	3	2.8	1.31	1.3	1	0.96	0.9						
Focal Length (mm)		4.3	4.5	6.2	7.5	7.6	8.5	10	11	14	15	28	50	60		106	128	137	158	168	180	385	400	500	525	560					
HJ SERIES (HDTV)	HJ14ex4.3B	Widest Angle HDTV Lens To Date in the TV Industry																													
	HJ15ex8.5B						The First HDTV Lens in the Industry With Advanced Image Stabilizer																								
	HJ17ex6.2B			Wider and Closer Premium Standard Lens																											
	HJ18ex7.6B				Standard HDTV ENG Lens In Compact Size																										
	HJ21ex7.5B				HDTV EFP Lens of Advanced Optical Performance																										
	HJ24ex7.5B				Multi Purpose HDTV ENG Lens of Broad Range of Focal Length																										
	HJ18ex28B												Ultra Telephoto HDTV EFP Lens in Portable Size																		
	HJ40ex10B									Telephoto HDTV EFP Lens With Advanced Image Stabilizer																					
	HJ40ex14B											Ultra Telephoto HDTV EFP Lens With Advanced Image Stabilizer																			

- Canon offers a variety of Broadcast ENG/EFP lenses, including both HDTV and SDTV versions. Please refer to page 12 regarding the difference between HDTV and SDTV lenses. Please note that the HDTV lenses perform excellently when they are used on SDTV cameras.
- Please refer to pages 8, 9 and 10 regarding HDxs and HDgc series lenses. All Broadcast ENG/EFP lenses are equipped with Canon's "xs" technology as well as our enhanced "Digital Drive" which is explained on pages 35 and 36.

HDTV PORTABLE LENSES (2/3")

HDTV



		HJ40x14B IASD-V	HJ40x10B IASD-V	HJ18ex28B IASE S
Zoom Ratio		40x	40x	18x
Image Size		2/3"	2/3"	2/3"
Built-in Extender		2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		14~560mm 28~1120mm (2.0x)	10~400mm 20~800mm (2.0x)	28~500mm 56~1000mm (2.0x)
Maximum Relative Aperture (with Extender)		1:2.8 at 14~307mm 1:5.1 at 560mm 1:5.6 at 28~614mm (2.0x) 1:10.2 at 1120mm (2.0x)	1:2.0 at 10~220mm 1:3.65 at 400mm 1:4.0 at 20~440mm (2.0x) 1:7.3 at 800mm (2.0x)	1:2.8 at 28~286mm 1:4.9 at 500mm 1:5.6 at 56~572mm (2.0x) 1:9.8 at 1000mm (2.0x)
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	34.9°x26.5° at 14mm 0.9°x0.7° at 560mm 17.9°x13.4° at 28mm (2.0x) 0.5°x0.3° at 1120mm (2.0x)	47.5°x36.5° at 10mm 1.3°x0.9° at 400mm 24.8°x18.7° at 20mm (2.0x) 0.6°x0.5° at 800mm (2.0x)	18.0°x13.5° at 28mm 1.0°x0.8° at 500mm 9.0°x6.8° at 56mm (2.0x) 0.5°x0.4° at 1000mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	37.8°x21.8° at 14mm 1.0°x0.6° at 560mm 19.4°x11.0° at 28mm (2.0x) 0.5°x0.3° at 1120mm (2.0x)	51.3°x30.2° at 10mm 1.4°x0.8° at 400mm 27.0°x15.4° at 20mm (2.0x) 0.7°x0.4° at 800mm (2.0x)	19.6°x11.1° at 28mm 1.1°x0.6° at 500mm 9.9°x5.6° at 56mm (2.0x) 0.6°x0.3° at 1000mm (2.0x)
M.O.D.* from Lens Front		2.8m (10mm with Macro)	2.8m (10mm with Macro)	2.2m (10mm with Macro)
M.O.D.* from Image Plane		3.20m	3.18m	2.52m
Object Dimensions at M.O.D.* (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	162.3x121.7cm at 14mm 4.1x3.1cm at 560mm 81.2x60.9cm at 28mm (2.0x) 2.1x1.6cm at 1120mm (2.0x)	227.7x170.8cm at 10mm 5.7x4.3cm at 400mm 113.9x85.4cm at 20mm (2.0x) 2.9x2.2cm at 800mm (2.0x)	65.4x49.1cm at 28mm 3.8x2.9cm at 500mm 32.7x24.6cm at 56mm (2.0x) 1.9x1.5cm at 1000mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	177.1x99.5cm at 14mm 4.5x2.5cm at 560mm 88.6x49.8cm at 28mm (2.0x) 2.3x1.3cm at 1120mm (2.0x)	248.4x139.7cm at 10mm 6.2x3.5cm at 400mm 124.2x69.9cm at 20mm (2.0x) 3.1x1.8cm at 800mm (2.0x)	71.1x40.0cm at 28mm 4.1x2.3cm at 500mm 35.6x20.0cm at 56mm (2.0x) 2.1x1.2cm at 1000mm (2.0x)
Approx. Size (WxHxL)		6.9x5.2x14 in. (174.1x133x355.5mm)	6.9x5.2x13.2 in. (174.1x133x335.4mm)	6.9x4.9x10.6 in. (176.2x123.6x268.3mm)
Approx. Weight (IRSE/IASE)		12.02 lbs (5.45kg)	11.90 lbs (5.40kg)	5.65 lbs (2.56kg)
Filter Thread Size (Hood/Lens Barrel)		— / 127mm P0.75	— / 127mm P0.75	127mm P0.75 / —
Built-in Optical Image Stabilizer		✓	✓	—
Information Display		—	—	✓
Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras.				
Angular Field of View (with Extender)	4:3 mode of Most Switchable Cameras (7.2x5.4mm)	28.8°x21.8° at 14mm 0.7°x0.6° at 560mm 14.7°x11.0° at 28mm (2.0x) 0.4°x0.3° at 1120mm (2.0x)	39.6°x30.2° at 10mm 1.0°x0.8° at 400mm 20.4°x15.4° at 20mm (2.0x) 0.5°x0.4° at 800mm (2.0x)	14.7°x11.1° at 28mm 0.8°x0.6° at 500mm 7.4°x5.6° at 56mm (2.0x) 0.4°x0.3° at 1000mm (2.0x)

✓ Standard — Not Applicable

*M.O.D. = Minimum Object Distance.

• Please refer to page 35 for explanation about IASE (IASD).

• The IASE A/IASE S Digital Drive units come equipped with Zoom, Iris, and Focus Encoders.

HDTV PORTABLE LENSES (2/3")

HDTV		HJ24ex7.5B IRSE S / IASE S	HJ21ex7.5B IASE S	HJ18ex7.6B IRSE S / IASE S
 ENG		 EFP		
Zoom Ratio		24x	21x	18x
Image Size		2/3"	2/3"	2/3"
Built-in Extender		2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		7.5~180mm 15~360mm (2.0x)	7.5~158mm 15~316mm (2.0x)	7.6~137mm 15.2~274mm (2.0x)
Maximum Relative Aperture (with Extender)		1:1.8 at 7.5~120mm 1:2.7 at 180mm 1:3.6 at 15.0~240mm (2.0x) 1:5.4 at 360mm (2.0x)	1:1.9 at 7.5~116mm 1:2.6 at 158mm 1:3.8 at 15~232mm (2.0x) 1:5.2 at 316mm (2.0x)	1:1.8 at 7.6~103mm 1:2.4 at 137mm 1:3.6 at 15.2~206mm (2.0x) 1:4.8 at 274mm (2.0x)
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	60.8°x47.5° at 7.5mm 2.8°x2.1° at 180mm 32.7°x24.8° at 15.0mm (2.0x) 1.4°x1.1° at 360mm (2.0x)	60.8°x47.5° at 7.5mm 3.2°x2.4° at 158mm 32.7°x24.8° at 15mm (2.0x) 1.6°x1.2° at 316mm (2.0x)	60.1°x46.9° at 7.6mm 3.7°x2.8° at 137mm 35.1°x20.1° at 15.2mm (2.0x) 1.8°x1.4° at 274mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	65.2°x39.6° at 7.5mm 3.1°x1.7° at 180mm 35.5°x20.4° at 15.0mm (2.0x) 1.5°x0.9° at 360mm (2.0x)	65.2°x39.6° at 7.5mm 3.5°x2.0° at 158mm 35.5°x20.4° at 15mm (2.0x) 1.7°x1.0° at 316mm (2.0x)	64.6°x39.1° at 7.6mm 4.0°x2.3° at 137mm 35.1°x20.1° at 15.2mm (2.0x) 2.0°x1.1° at 274mm (2.0x)
M.O.D.* from Lens Front		0.80m (10mm with Macro)	0.85m (10mm with Macro)	0.56m (10mm with Macro)
M.O.D.* from Image Plane		1.07m	1.16m	0.81m
Object Dimensions at M.O.D.* (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	88.3x66.2cm at 7.5mm 3.8x2.9cm at 180mm 44.2x33.1cm at 15.0mm (2.0x) 1.9x1.4cm at 360mm (2.0x)	110.1x82.6cm at 7.5mm 5.1x3.8cm at 158mm 55.1x41.3cm at 15mm (2.0x) 2.6x1.9cm at 316mm (2.0x)	55.9x44.9cm at 7.6mm 3.3x2.5cm at 137mm 30.0x22.5cm at 15.2mm (2.0x) 1.7x1.3cm at 274mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	96.0x54.0cm at 7.5mm 4.1x2.3cm at 180mm 48.0x27.0cm at 15.0mm (2.0x) 2.1x1.2cm at 360mm (2.0x)	120.4x67.7cm at 7.5mm 5.6x3.2cm at 158mm 60.2x33.9cm at 15mm (2.0x) 2.8x1.6cm at 316mm (2.0x)	65.5x36.8cm at 7.6mm 3.8x2.1cm at 137mm 32.8x18.4cm at 15.2mm (2.0x)) 1.9x1.1cm at 274mm (2.0x)
Approx. Size (WxHxL)		6.5x4.3x8.7 in. (164.6x109.1x221.4mm)	6.9x4.8x10.2 in. (175.2x122.5x260.1mm)	6.5x4.1x8.1 in. (165x105x206.2mm)
Approx. Weight (IRSE/IASE)		3.92 lbs (1.78kg) / 4.10 lbs (1.86kg)	— / 5.94 lbs (2.69kg)	3.48 lbs (1.58kg) / 3.65 lbs (1.66kg)
Filter Thread Size (Hood / Lens Barrel)		105mm P1 / 94mm P1	127mm P0.75 / —	— / 82mm P0.75
Built-in Optical Image Stabilizer		—	—	—
Information Display		✓	✓	✓
Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras.				
Angular Field of View (with Extender)	4:3 mode of Most Switchable Cameras (7.2x5.4mm)	—	51.3°x39.6° at 7.5mm 2.6°x2.0° at 158mm 27.0°x20.4° at 15mm (2.0x) 1.3°x1.0° at 316mm (2.0x)	50.7°x39.1° at 7.6mm 3.0°x2.3° at 137mm 26.6x20.1 at 15.2mm (2.0x) 1.5x1.1 at 274mm (2.0x)

✓ Standard — Not Applicable

*M.O.D. = Minimum Object Distance.

• Please refer to page 12, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adopted to SDTV cameras.

• Please refer to page 35 for explanation about IASE (IASD).

• The IRSE S/IASE S models are equipped with the 4th generation Digital Drive Unit and come equipped with Zoom, Iris, and Focus Encoders.

HDTV PORTABLE LENSES (2/3")

HDTV		HJ17ex6.2B IRSE S/IASE S	HJ14ex4.3B IRSE S/IASE S	HJ15ex8.5B KRSE-V S
				 IMAGE STABILIZER
Zoom Ratio		17x	14x	15x
Image Size		2/3"	2/3"	2/3"
Built-in Extender		2.0x	2.0x	—
Range of Focal Length (with Extender)		6.2~106mm 12.4~212mm (2.0x)	4.3~60mm 8.6~120mm (2.0x)	8.5~128mm
Maximum Relative Aperture (with Extender)		1:1.8 at 6.2~65.8mm 1:2.9 at 106mm 1:3.6 at 12.4~131.6mm (2.0x) 1:5.8 at 212mm (2.0x)	1:1.8 at 4.3~40mm 1:2.7 at 60mm 1:3.6 at 8.6~80mm (2.0x) 1:5.4 at 120mm (2.0x)	1:2.5 at 8.5~68mm 1:4.7 at 128mm
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	70.7°x56.0° at 6.2mm 4.8°x3.6° at 106mm 39.1°x29.8° at 12.4mm (2.0x) 2.4°x1.8° at 212mm (2.0x)	91.3°x75.0° at 4.3mm 8.4°x6.3° at 60mm 54.2°x42.0° at 8.6mm (2.0x) 4.2°x3.2° at 120mm (2.0x)	54.7°x42.4° at 8.5mm 3.9°x3.0° at 128mm
	16:9 Aspect Ratio (9.6x5.4mm)	75.5°x47.1° at 6.2mm 5.2°x 2.9° at 106mm 42.3°x24.6° at 12.4mm (2.0x) 2.6°x1.5° at 212mm (2.0x)	96.3°x64.2° at 4.3mm 9.1°x5.2° at 60mm 58.3°x34.9° at 8.6mm (2.0x) 4.6°x2.6° at 120mm (2.0x)	58.9°x35.2° at 8.5mm 4.3°x 2.4° at 128mm
M.O.D.* from Lens Front		0.4m (10mm with Macro)	0.3m (10mm with Macro)	0.8m (10mm with Macro)
M.O.D.* from Image Plane		0.69m	0.59m	—
Object Dimensions at M.O.D.* (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	66.9x50.2cm at 6.2mm 3.8x2.9cm at 106mm 33.5x25.1cm at 12.4mm (2.0x) 1.9x1.5cm at 212mm (2.0x)	69.9x52.4cm at 4.3mm 4.8x3.6cm at 60mm 35.0x26.2cm at 8.6mm (2.0x) 2.4x1.8cm at 120mm (2.0x)	87.4x65.6cm at 8.5mm 5.8x4.4cm at 128mm
	16:9 Aspect Ratio (9.6x5.4mm)	73.3x41.2cm at 6.2mm 4.1x2.3cm at 106mm 36.7x20.6cm at 12.4mm (2.0x) 2.1x1.2cm at 212mm (2.0x)	76.4x43cm at 4.3mm 5.2x2.9cm at 60mm 38.2x21.5cm at 8.6mm (2.0x) 2.6x1.5cm at 120mm (2.0x)	95.8x53.9cm at 8.5mm 6.4x3.6cm at 128mm
Approx. Size (WxHxL)		6.5x4.4x9.5 in. (165x112.3x240.5mm)	6.4x4.4x9.8 in. (163.5x110.8x247.8mm)	6.7x4.7x9.4 in. (170.2x119.1x239.1mm)
Approx. Weight (IRSE/IASE)		4.34 lbs (1.97kg) / 4.52 lbs (2.05kg)	4.39 lbs (1.99kg) / 4.56 lbs (2.07kg)	4.37 lbs (1.99kg)
Filter Thread Size (Hood / Lens Barrel)		105mm P1 / —	127mm P0.75 / —	— / 82mm P0.75
Built-in Optical Image Stabilizer		—	—	✓
Information Display		✓	✓	✓
Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras.				
Angular Field of View (with Extender)	4:3 mode of Most Switchable Cameras (7.2x5.4mm)	60.3°x47.1° at 6.2mm 3.9°x2.9° at 106mm 32.4°x24.6° at 12.4mm (2.0x) 1.9°x1.5° at 212mm (2.0x)	79.9°x64.2° at 4.3mm 6.9°x5.2° at 60mm 45.4°x34.9° at 8.6mm (2.0x) 3.4°x2.6° at 120mm (2.0x)	—

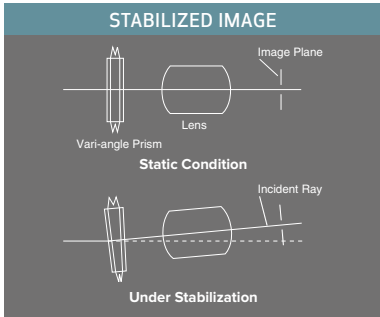
✓ Standard — Not Applicable

*M.O.D. = Minimum Object Distance.

• Please refer to page 30 for the details of the HJ15ex8.5B KRSE-V.

WORLD'S FIRST
BUILT-IN IMAGE STABILIZER
HDTV PORTABLE LENS

The Canon HJ15ex8.5B KRSE-V portable HD zoom lens, with a built-in Optical Image Stabilizer, is designed to maintain stable images even when the camera is subject to jolts and vibrations. This is a compact, lightweight lens specifically intended to produce stable HD imagery in those many shooting environments that entail vibration and physical disturbances to the lens-camera system. The HJ15ex8.5B KRSE-V uses Canon's unique Vari-Angle Prism Image-Stabilizer (VAP-IS) technology to achieve a high level of image stability, while maintaining a high optical performance to ensure a high level of HD Image Stabilization, all the way from telephoto to wide-angle settings. (See page 29 for the specification.)



MAIN FEATURES



- Preserving Full HDTV Optical Performance with incorporation of the Vari-Angle Prism Image Stabilizer System.
- Powerful Image Stabilization throughout the entire zoom range.
- Real-time compensation for a wide range of disturbance frequencies encountered by a camera operator who is shooting handheld while walking, running, or operating from a motorcycle pillion, within a moving vehicle, boat, or helicopter, etc.
- Various Stabilizing Modes - Combination of two modes from two categories is available and each mode is simply set by changing the switches on the lens.

Select According to the Shooting Situation	Portable mode	Compensates for motion-related disturbances while shooting shoulder mount or handheld.
	Tripod mode	Effectively compensates for disturbances caused by unsteady platform or wind.
Select According to the Direction of Disturbance	H+V mode	Optimizes stabilization action when disturbance frequencies are both horizontal and vertical.
	V mode	Effectively counters vertical disturbances while operationally panning the lens-camera.

HOW THE VAP-IS (VARI-ANGLE-PRISM IMAGE STABILIZER) WORKS

Under perfect shooting conditions, light rays from a scene pass through the lens optical system in a tightly prescribed manner. Any vibration or jolt to the lens-camera system will deflect those light rays and produce image unsteadiness. The VAP-IS Technology is incorporated within the lens optical system to intercept such light ray perturbations and correct their deviations in real-time. The technology to do this is based upon a flexible optical bellows that entails two flat glass elements separated by a special liquid. This forms a sealed mini-optical grouping within the overall lens element groupings. The bellows expands and contracts when the lens is physically disturbed and the very high refractive index of the liquid bends the disturbed light rays in the opposite direction. This imparts a high degree of real-time correction to the angle of the light rays, helping to ensure they arrive at the image plane devoid of any unsteadiness.



HDgc SERIES ENG LENSES
(2/3", 1/2", 1/3")



Horizontal Field of View (16:9)		62.6	75.7	55.2	77.3	57.1	64.6	63.9	60.7	58.9	12.2	6.8	4.1	7	3	3.1	4.2	3.4	3.3	3.2		
Focal Length (mm)		4.3	4.5	5	6	6.4	7.6	7.7	8.2	8.5	45	59	73	78	100	120	128	131	164	168	170	
2/3"	KJ10ex4.5B	2/3" Wide Angle HDTV Lens																				
	KJ17ex7.7B	2/3" Standard HDTV ENG Lens																				
	KJ22ex7.6B	2/3" Multi-Purpose HDTV ENG Lens																				
	KJ13x6B	2/3" Wide Angle HDTV Lens Without Extender																				
	KJ20x8.2B	2/3" Wide Angle HDTV Lens With Extender																				
1/2"	KH13ex4.5	1/2" Wide Angle HDTV Lens Without Extender																				
	KH20ex6.4	1/2" Multi-Purpose HDTV ENG Lens Without Extender																				
1/3"	KT17ex4.3B	1/3" Premium HDTV ENG Lens																				
	KT20x5B	1/3" Multi-Purpose HDTV ENG Lens Without Extender																				

- The HDgc is a lens series consists of a variety of HDTV ENG Lenses for 2/3", 1/2", and 1/3" image size cameras. The HDgc series supports the emergence of an important generation of cost-effective HD acquisition systems.
- Please refer to page 9 for the introduction of the HDgc Series.

HDgc SERIES LENSES (2/3")



HDTV

		KJ22ex7.6B IRSE/IASE	KJ17ex7.7B IRSE S/IASE S	KJ10ex4.5B IRSE A/IASE A
Zoom Ratio		22x	17x	10x
Image Size		2/3"	2/3"	2/3"
Built-in Extender		2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		7.6~168mm 15.2~336mm (2.0x)	7.7~131mm 15.4~262mm (2.0x)	4.5~45mm 9~90mm (2.0x)
Maximum Relative Aperture (with Extender)		1:1.8 at 7.6~116.3mm 1:2.6 at 168mm 1:3.6 at 15.2~232.6mm (2.0x) 1:5.2 at 336mm (2.0x)	1:1.8 at 7.7~102.5mm 1:2.3 at 131mm 1:3.6 at 15.4~205mm (2.0x) 1:4.6 at 262mm (2.0x)	1:1.8 at 4.5~34.5mm 1:2.35 at 45mm 1:3.6 at 9~68.9mm (2.0x) 1:4.7 at 90mm (2.0x)
Angular Field of View (with Extender)	4:3 Aspect Ratio	60.1°x46.9° at 7.6mm 3.0°x2.3° at 168mm 32.3°x24.5° at 15.2mm (2.0x) 1.5°x1.1° at 336mm (2.0x)	59.5°x46.4° at 7.7mm 3.85°x2.89° at 131mm 31.9°x24.2° at 15.4mm (2.0x) 1.92°x1.44° at 262mm (2.0x)	88.7°x72.5° at 4.5mm 11.2°x8.4° at 45mm 52.1°x40.3° at 9mm (2.0x) 5.6°x4.2° at 90mm (2.0x)
	16:9 Aspect Ratio	64.6°x39.1° at 7.6mm 3.3°x1.8° at 168mm 35.1°x20.1° at 15.2mm (2.0x) 1.6°x0.9° at 336mm (2.0x)	63.9°x38.6° at 7.7mm 4.2°x2.36° at 131mm 34.6°x19.9° at 15.4mm (2.0x) 2.1°x1.18° at 262mm (2.0x)	93.7°x61.9° at 4.5mm 12.2°x6.9° at 45mm 56.1°x33.4° at 9mm (2.0x) 6.1°x3.4° at 90mm (2.0x)
M.O.D.* from Lens Front		0.8m (10mm with Macro)	0.6m (10mm with Macro)	0.3m (10mm with Macro)
Object Dimensions at M.O.D.* (with Extender)	4:3 Aspect Ratio	87.4x65.6cm at 7.6mm 4.0x3.0cm at 168mm 43.7x32.8cm at 15.2mm (2.0x) 2.0x1.5cm at 336mm (2.0x)	63.1x47.3cm at 7.7mm 3.8x2.9cm at 131mm 31.6x23.7cm at 15.4mm (2.0x) 1.9x1.5cm at 262mm (2.0x)	67.9x50.9cm at 4.5mm 5.9x4.4cm at 45mm 34.0x25.5cm at 9mm (2.0x) 3.0x2.2cm at 90mm (2.0x)
	16:9 Aspect Ratio	95.0x53.4cm at 7.6mm 4.4x2.5cm at 168mm 47.5x26.7cm at 15.2mm (2.0x) 2.2x1.3cm at 336mm (2.0x)	68.5x38.5cm at 7.7mm 4.2x2.4cm at 131mm 34.3x19.3cm at 15.4mm (2.0x) 2.1x1.2cm at 262mm (2.0x)	74.1x41.7cm at 4.5mm 6.4x3.6cm at 45mm 37.0x20.8cm at 9mm (2.0x) 3.2x1.8cm at 90mm (2.0x)
Approx. Size (WxHxL)		6.5x4.4x8.6 in. (164.7x112.1x218.6mm)	6.3x4.2x7.8 in. (159.3x106.6x197.8mm)	6.6x4.4x9.4 in. (168.2x110.6x237.7mm)
Approx. Weight (IRSE/IASE)		4.0 lbs (1.82kg)/4.19 lbs (1.90kg)	1.48kg (3.26 lbs)/3.44 lbs (1.56kg)	4.04 lbs (1.83kg)/4.22 lbs (1.91kg)
Information Display		✓	✓	✓
Filter Thread Size (Hood/Lens Barrel)		105mm P1 / 94mm P1	— / 82mm P0.75	127mm P0.75 / —

✓ Standard — Not Applicable

- *M.O.D. = Minimum Object Distance.
- "IRSD PS12" model for KJ22ex, KJ17ex, and KJ10ex is available as an exclusive model for Panasonic AG-HPX500.
 - For control accessories, please refer to page 38.
 - IRSE Models are equipped with servo motors for Zoom and Iris only while IASE Models are equipped for Zoom, Focus, and Iris.
 - KJ17ex, KJ22ex and KJ10ex Digital Drive Units all come equipped with Zoom, Iris and Focus Encoders.
 - The above specification for each lenses are based on ϕ 11mm image size format.
 - KJ17ex models are equipped with the 4th generation Digital Drive Unit.

HDgc SERIES LENSES (2/3")



HDTV

		KJ20x8.2B IRSD	KJ20x8.2B KRSD	KJ13x6B KRSD
Zoom Ratio		20x	20x	13x
Image Size		2/3"	2/3"	2/3"
Built-in Extender		2.0x	—	—
Range of Focal Length (with Extender)		8.2~164mm 16.4~328mm (2.0x)	8.2~164mm	6~78mm
Maximum Relative Aperture (with Extender)		1:1.9 at 8.2~115.4mm 1:2.7 at 164mm 1:3.8 at 16.4~230.8mm (2.0x) 1:5.4 at 328mm (2.0x)	1:1.9 at 8.2~115.4mm 1:2.7 at 164mm	1:2.0 at 6~58mm 1:2.7 at 78mm
Angular Field of View (with Extender)	4:3 Aspect Ratio	56.4°x43.8° at 8.2mm 3.1°x2.3° at 164mm 30.0°x22.8° at 16.4mm (2.0x) 1.5°x1.2° at 328mm (2.0x)	56.4°x43.8° at 8.2mm 3.1°x2.3° at 164mm	72.5°x57.6° at 6mm 6.5°x4.8° at 78mm
	16:9 Aspect Ratio	60.7°x36.5° at 8.2mm 3.4°x1.9° at 164mm 32.6°x 18.7° at 16.4mm (2.0x) 1.7°x0.9° at 328mm (2.0x)	60.7°x36.5° at 8.2mm 3.4°x1.9° at 164mm	77.3°x48.5° at 6mm 7.0°x4.0° at 78mm
M.O.D.* from Lens Front		0.9m (10mm with Macro)	0.9m (10mm with Macro)	0.4m (10mm with Macro)
Object Dimensions at M.O.D.* (with Extender)	4:3 Aspect Ratio	90.1x67.6cm at 8.2mm 4.6x3.5cm at 164mm 45.1x33.8cm at 16.4mm (2.0x) 2.3x1.8cm at 328mm (2.0x)	90.1x67.6cm at 8.2mm 4.6x3.5cm at 164mm	67.8x50.9cm at 6mm 5.0x3.8cm at 78mm
	16:9 Aspect Ratio	98.2x55.2cm at 8.2mm 5.0x2.8cm at 164mm 49.1x27.6cm at 16.4mm (2.0x) 2.5x1.4cm at 328mm (2.0x)	98.2x55.2cm at 8.2mm 5.0x2.8cm at 164mm	74.3x41.8cm at 6mm 5.4x3.0cm at 78mm
Approx. Size (WxHxL)		6.4x4.1x8.2 in. (163.3x103.0x208.0mm)	6.4x4x7.2 in. (163.3x103.0x181.8mm)	6.5x4.1x8.3 in. (165.4x105.1x211.7mm)
Approx. Weight (IRSE/IASE)		3.13 lbs (1.42kg) / —	2.76 lbs (1.25kg)	3.5 1lbs (1.59kg)
Information Display		—	—	—
Filter Thread Size (Hood/Lens Barrel)		— / 82mm P0.75	— / 82mm P0.75	105mm P1 / —

✓ Standard — Not Applicable

- *M.O.D. = Minimum Object Distance.
- For control accessories, please refer to page 39.
 - The above specification for each lenses are based on the following image size formats. 2/3": ϕ 11mm.

HDgc SERIES LENSES (1/2" & 1/3")



		KH20x6.4 KRSD SY14	KH13x4.5 KRSD SY14	KT17ex4.3B IRSE	KT20x5B KRSD A
Zoom Ratio		20x	13x	17x	20x
Image Size		1/2"	1/2"	1/3"	1/3"
Built-in Extender		—	—	2.0x	—
Range of Focal Length (with Extender)		6.4~128mm	4.5~59mm	4.3~73mm 8.6~146mm (2.0x)	5~100mm
Maximum Relative Aperture (with Extender)		1:1.4 at 6.4~89.6mm 1:2.0 at 128mm	1:1.5 at 4.5~44mm 1:2.0 at 59mm	1:1.4 at 4.3~73mm 1:2.8 at 8.6~146mm (2.0x)	1:1.4 at 5.0~90.3mm 1:1.55 at 100mm
Angular Field of View (with Extender)	4:3 Aspect Ratio	53.1°x41.1° at 6.4mm 2.9°x2.1° at 128mm	70.8°x56.1° at 4.5mm 6.2°x4.7° at 59mm	58.3°x45.4° at 4.3mm 3.8°x2.8° at 73mm 31.2°x23.6° at 8.6mm (2.0x) 1.9°x1.4° at 146mm (2.0x)	51.3°x39.6° at 5mm 2.8°x2.1° at 100mm
	16:9 Aspect Ratio	57.1°x34.1° at 6.4mm 3.1°x1.8° at 128mm	75.7°x46.9° at 4.5mm 6.8°x3.8° at 59mm	62.6°x37.7° at 4.3mm 4.1°x2.3° at 73mm 33.8°x19.4° at 8.6mm (2.0x) 2.1°x1.2° at 146mm (2.0x)	55.2°x32.8° at 5mm 3.0°x1.7° at 100mm
M.O.D.* from Lens Front		0.9m (10mm with Macro)	0.4m (10mm with Macro)	0.6m (10mm with Macro)	0.9m (10mm with Macro)
Object Dimensions at M.O.D.* (with Extender)	4:3 Aspect Ratio	82.6x62.0cm at 6.4mm 4.3x3.2cm at 128mm	66.7x50.0cm at 4.5mm 4.9x3.7cm at 59mm	61.5x46.1cm at 4.3mm 3.8x2.9cm at 73mm 30.8x23.1cm at 8.3mm (2.0x) 1.9x1.5cm at 146mm (2.0x)	80.9x60.7cm at 5mm 4.2x3.2cm at 100mm
	16:9 Aspect Ratio	89.8x50.5cm at 6.4mm 4.6x2.6cm at 128mm	73.4x41.3cm at 4.5mm 5.4x3.0cm at 59mm	66.9x37.6cm at 4.3mm 4.1x2.3cm at 73mm 33.5x18.8cm at 8.6mm (2.0x) 2.1x1.2cm at 146mm (2.0x)	88.1x49.6cm at 5.0mm 4.5x2.5cm at 100mm
Approx. Size (WxHxL)		6.4x4x7.2 in. (163.3x103x182.5mm)	6.5x4.1x8.5 in. (165.4x105.1x215.3mm)	6.3x4.2x7.8 in. (159.3x106.6x197.3mm)	6.4x4.1x6.7 in. (163.3x103x171.2mm)
Approx. Weight (IRSE/IASE)		2.8 lbs (1.27kg)	1.59kg (3.51 lbs)	3.26 lbs (1.48kg)	2.62 lbs (1.19kg)
Information Display		—	—	—	—
Filter Thread Size (Hood/Lens Barrel)		— / 82mm P0.75	105mm P1 / —	— / 82mm P0.75	— / 82mm P0.75

✓ Standard — Not Applicable
*M.O.D. = Minimum Object Distance.
• For control accessories for KT17ex, please refer to page 38. For all other lenses, please refer to page 39.
• The above specification for each lenses are based on the following image size formats. 1/2": ϕ 8mm, 1/3": ϕ 6mm.

DIGITAL DRIVE ENG/EFP LENS FEATURES

With the introduction of the eIFxs and the e-HDxs series that has enhanced Canon's well known "Digital Drive," all of the broadcast HDTV lenses now offer many features, which have also been inherited by the HDxs and HDgc (IRSE/IASE model) lenses. The concept of enhanced "Digital Drive" is based on "Ease of Operation" for Canon's customers.

THREE PRESET FUNCTIONS

Canon Digital Drive provides the following "three preset functions" that have become possible with digital technology.

SHUTTLE SHOT



By memorizing any two focal lengths, the Digital Drive can automatically "shuttle" between the two points, moving in either direction.



FRAME PRESET



The angle of view can be preset in either of two memories (DD: one memory) and the lens will zoom to that position by pushing a simple button. During a performance, frame preset will reproduce the zoom position decided upon at the rehearsal. It's easy to repeat the same zoom as often as you like at the highest speed or in a preset zoom speed.



SPEED PRESET



A specific zoom speed can be preset in memory and it is possible to repeat the zoom speed as often as you like by pushing a simple button.



ZOOM MODE SELECT

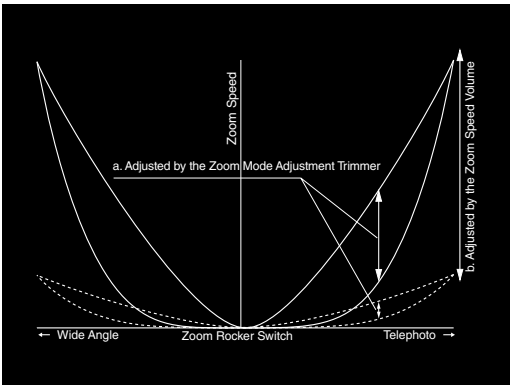


One of several operational curves can be chosen which will allow different zoom movement characteristics when operating the seesaw switch. This is accomplished as a linear adjustment as opposed to an adjustment done in steps.

USER-CUSTOMIZED SETTING

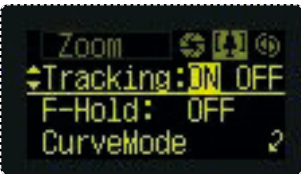


The drive unit can memorize 9 patterns of user-customized settings and also transmit the data between different drive units.



DIGITAL DRIVE ENG/EFP LENS FEATURES CONTINUED

ZOOM TRACK



"Zoom Track" allows the camera operator to adjust the electronic focal length to their desired range by memorizing zoom positions at both the tele and the wide side of the zoom.



ERGONOMIC DRIVE UNIT

The HDxs, eIFxs, and HDgc (IRSE/IASE model) Ergonomic Drive Unit is tilted at an ideal angle of 12.5° to realize good balance and comfort. An information display has been added which now allows the user to customize the enhanced digital functions easily, precisely, and fully. The enhanced digital functions are easily accessed and set via the Digital Function Selector, an X-Y axis switch located next to the display.

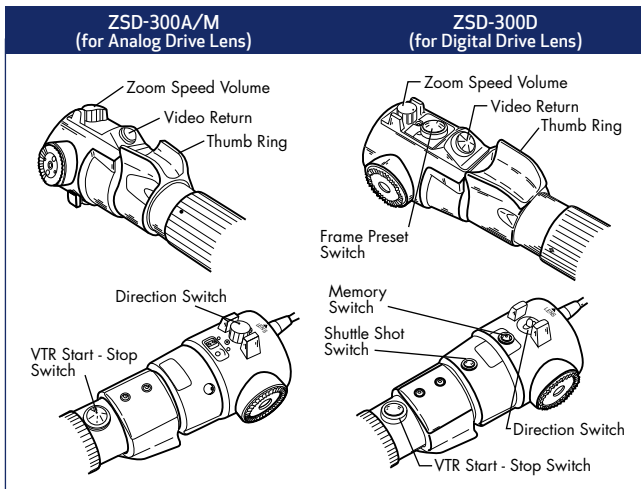


IMPROVED MAXIMUM ZOOM AND FOCUS SERVO SPEED

Zoom: 0.5 sec., Focus: 1.5 sec.

DIGITAL ZOOM AND FOCUS DEMANDS

Canon offers a series of servo controllers for Digital Drive lenses. The ZSD-300D (zoom demand), FPD-400D (focus demand), and FPM-420D (focus servo module) support the Digital Driver's functions. These demands are connected to the "Digital Drive" via a 20 pin one-touch type connector, which makes the connecting and disconnecting easy and quick. Also with the FPD-400D, focus servo operational curve can be selected unlike the conventional focus demand. The digital series of demands and the conventional demands have complete compatibility with each other, except for the digital functions. (A conversion cable may be required. Please refer to page 39.)



VIRTUAL STUDIO COMPATIBILITY

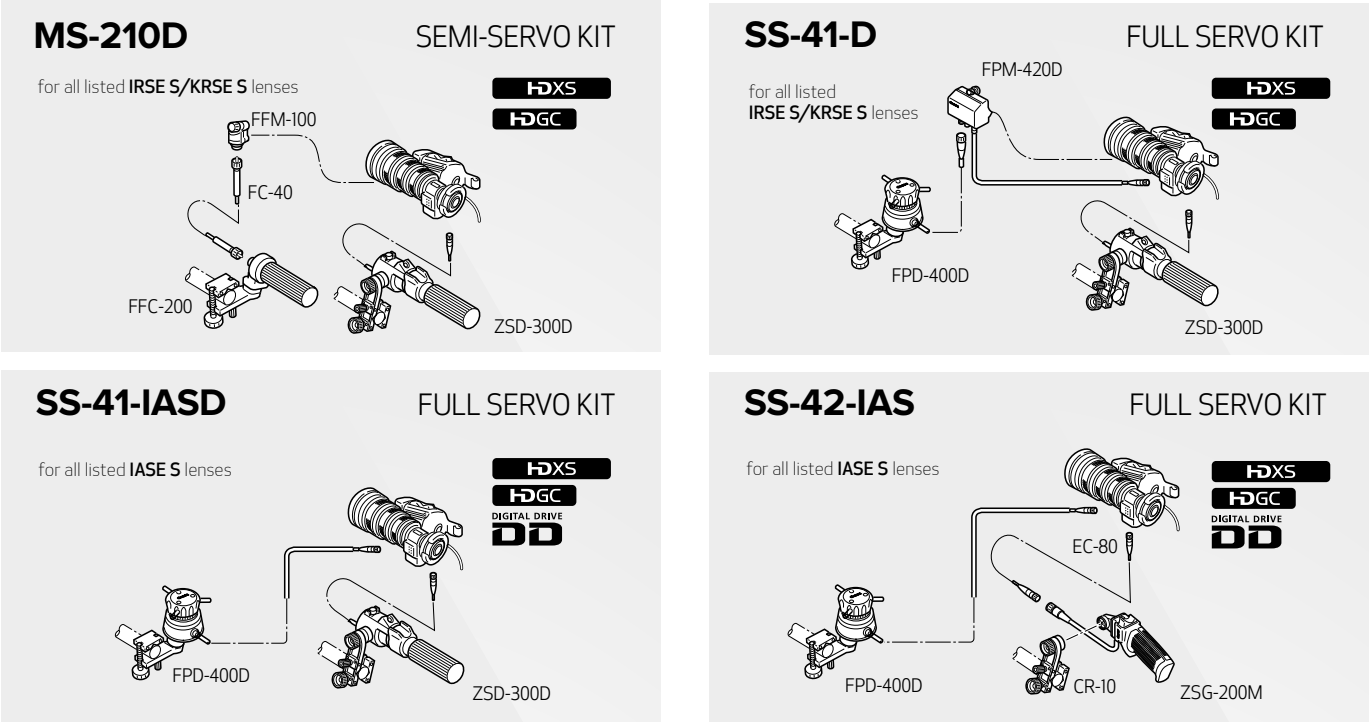


Canon has a series of HDxs, eIFxs, and HDgc (IRSE/IASE model) lenses which are equipped with an enhanced digital drive unit. Conventional potentiometers are analog positional sensors capable of only 8-10 bit equivalent resolution. Due to this, virtual studio systems with portable lenses called for an optional Encoder Unit to be put on the Zoom and Focus ring of the lens. With the introduction of 16 bit resolution Rotary Encoder Devices built into the enhanced digital drive unit, the lens can be simply integrated into a virtual digital studio system without any additions. The encoders also enable superior precise control. The zoom servo provides a dynamic range of 0.5 sec. quick zooms to over a 5 min. super slow zoom. Repeatability in Focus and Iris control are also precise. Canon's technology has made the Encoder Device surprisingly small to be installed in the existing drive unit without changes in size or weight.

CONTROL ACCESSORIES OF DIGITAL DRIVE ENG/EFP LENSES

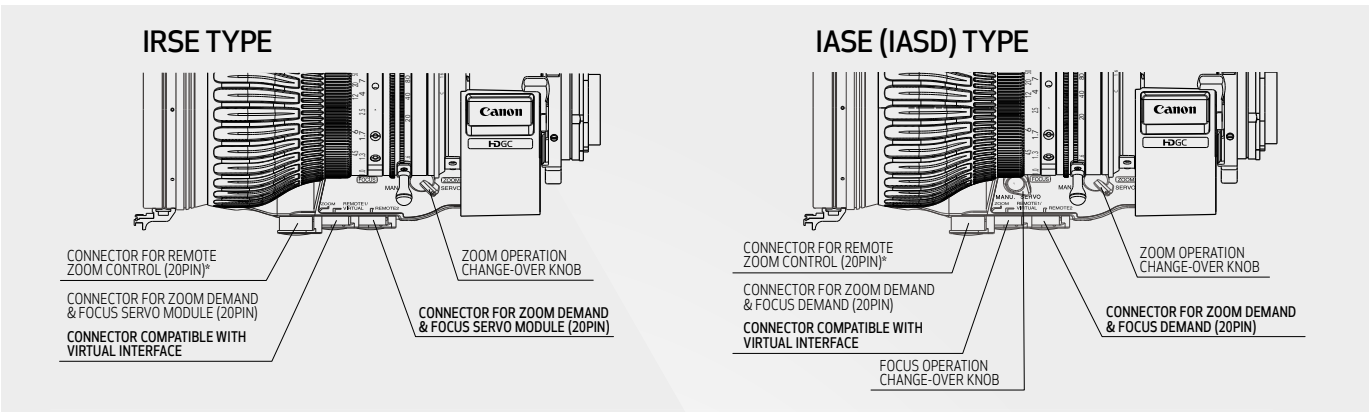
J35EX11B / J35EX15B / KJ22EX7.6B / KJ17EX7.7B / KJ10EX4.5B / KH21EX5.7 / H16EX5.7 / KH10EX3.6 / KT17EX4.3B / HJ14EX4.3B / HJ15EX8.5B KRSE S / HJ17EX6.2B / HJ18EX7.6B / HJ18EX28B / HJ21EX7.5B / HJ24EX7.5B / HJ40X10B / HJ40X14B

RECOMMENDED KIT CONFIGURATION



THE DIFFERENCE BETWEEN IRSE S AND IASE S TYPE LENSES

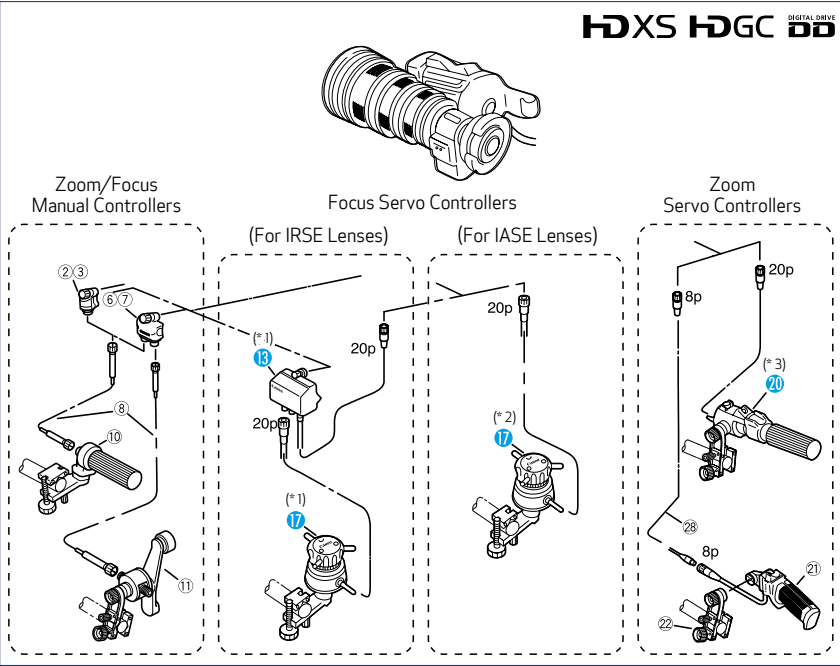
IRSE S lenses are the standard type of portable lens with a Servo Zoom Digital Drive Unit. For Servo Focus operation, IRSE S lenses require both a Servo Focus Module and a Servo Focus Demand. The IASE S lenses are a special type of portable lens equipped with a Digital Drive Unit offering both Servo Zoom and Focus. For servo focus operation, IASE S lenses only require a Servo Focus Demand. The IASE S lenses can be used in both the studio and the field.



* Telephoto lenses (HJ40x, J35ex) are not compatible with virtual interfaces.
*1: Previous generation lens types "IRSE", "IRSE A", "IASE" and "IASE A" have an 8-pin zoom control connector.

DIGITAL CONTROL ACCESSORIES OF DIGITAL DRIVE ENG/EFP LENSES

APPLICABLE COMPONENT DETAIL



#	UNIT	DESCRIPTION
②	FFM-100	Flex Focus Module
③	FFM-300	Flex Focus Module
⑥	FFM-200	Flex Dual Module
⑦	FFM-400	Flex Dual Module
⑧	FC-40	Flex Cable
⑩	FC-200	Flex Focus Controller
⑪	FZC-100	Flex Zoom Controller
⑮	FPM-420D	Focus Positional Servo Module
⑰	FPD-400D	Focus Positional Demand
⑳	ZSD-300D	Zoom Demand
㉑	ZSG-200M	Zoom Servo Grip
㉒	CR-10	Clamper
㉔	EC-80	Zoom Extension Cable (8P)

*1: FPD-400, FPM-420 and ZSD-300A/M are discontinued.
*2: Analog FPD-400 is also applicable, however, CC-2006 conversion cable is necessary to connect between IASD/IASE Digital Drive Lens and FPD-400.
*3: Analog ZSD-300A/M is also applicable.
*4: FPD-400 and ZSD-300A/M are discontinued models and are no longer available from Canon.
● The controllers support the new DD functions.

APPLICABLE KIT DETAIL

FOR IRSE TYPE LENSES

	Kit Name	Zoom		Focus	
		System	Component	System	Component
Zoom Servo Only	(ZR-1D)	ZR-1D	20	—	—
	—	ZR-2(A)	21, 22, 28	—	—
Semi-Servo	MS-210D	ZR-1D	20	FR-2	2, 8, 10
	MS-220	ZR-2(A)	21, 22, 28	FR-2	2, 8, 10
Full Servo	SS-41-D	ZR-1D	20	FPS-4D	13, 17
Full Manual	—	FZC-1	6, 8, 11	FR-2 (w/o 2)	8, 10

FOR IASE TYPE LENSES (EXCEPT HJ40X, J35EX)

	Kit Name	Zoom		Focus	
		System	Component	System	Component
Zoom Servo Only	(ZR-1D)	ZR-1D	20	—	—
	—	ZR-2(A)	21, 22, 28	—	—
Semi-Servo	MS-210D	ZR-1D	20	FR-2	2, 8, 10
	MS-220	ZR-2(A)	21, 22, 28	FR-2	2, 8, 10
Full Servo	SS-41-IASD	ZR-1D	20	FPS-4D	17
	SS-42-IASD	ZR-2(A)	21, 22, 28	FPS-4D	17
Full Manual	—	FZC-1	6, 8, 11	FR-2 (w/o 2)	8, 10

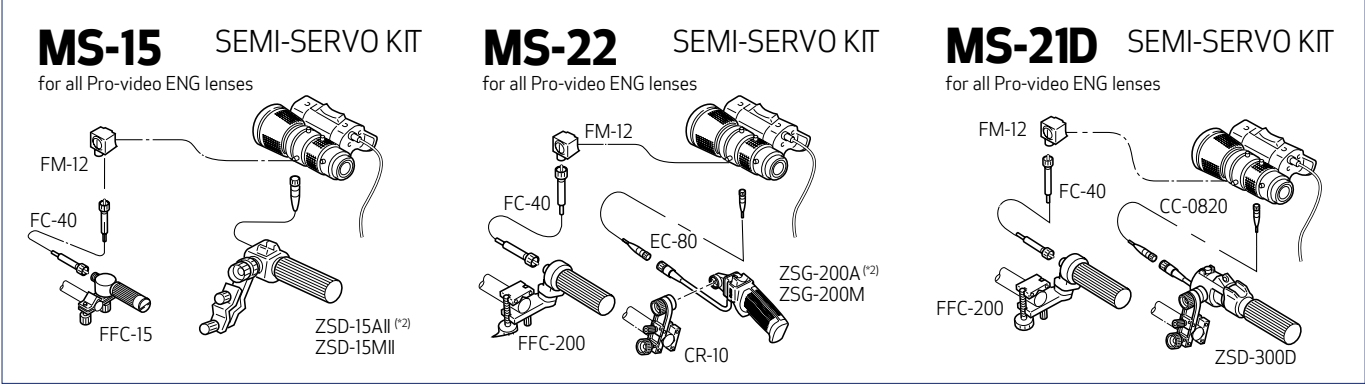
FOR HJ40X14B, HJ40X10B, J35EX15B, J35EX11B

	Kit Name	Zoom		Focus	
		System	Component	System	Component
Zoom Servo Only	—	ZR-1D	20	—	—
	—	ZR-2(A)	21, 22, 28	—	—
Semi-Servo	—	ZR-1D	20	FR-2	2, 8, 10
	—	ZR-2(A)	21, 22, 28	FR-2	2, 8, 10
Full Servo	SS-41-IASD	ZR-1D	20	FPS-4D	17
	SS-42-IASD	ZR-2(A)	21, 22, 28	FPS-4D	17
Full Manual	—	FZC-1	6, 8, 11	FR-2 (w/o 2)	8, 10

Recommended kit configuration.

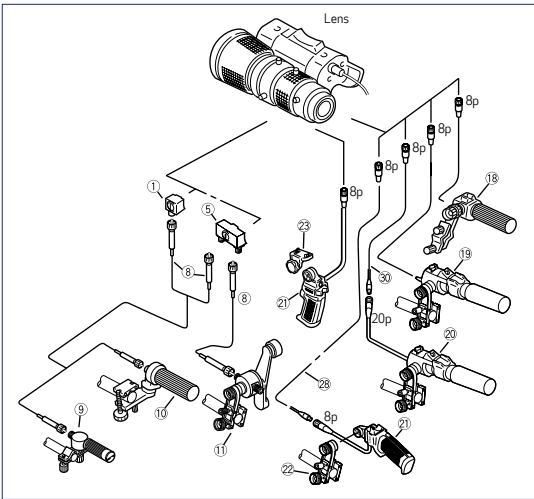
ANALOG CONTROL ACCESSORIES FOR ANALOG DRIVE HDgc^(*) LENSES

RECOMMENDED KIT CONFIGURATION



*1: HDgc Lenses on pages 33 and 34 (excluding KT17ex4.3B).
*2: "A" or "M" type demands depend upon camera. Type "A" demands are no longer available from Canon.

APPLICABLE COMPONENT DETAIL



#	UNIT	DESCRIPTION	CODE
①	FM-12	Flex Focus Module	1824A012
⑤	FM-70	Flex Dual Module	0002T071
⑧	FC-40	Flex Cable	1824A010
⑨	FFC-15	Flex Focus Controller	1824A024
⑩	FFC-200	Flex Focus Controller	1824A014
⑪	FZC-100	Flex Zoom Controller	1824A021
⑮	ZSD-15A II / M II	Zoom Demand ³ A	1824A070
⑰	ZSD-300A/M	Zoom Demand ³ A	1824A066
⑱	ZSD-300D	Zoom Demand	1824A123
⑲	ZSG-200A/M	Zoom Servo Grip ³ A	1824A068
㉑	CR-10	Clamper	1824A007
㉒	GA-70	Grip Adapter	0018T531
㉔	EC-80	Zoom Extension Cable (8P)	1824A009
㉔	CC-0820	Conv. Cable (8pM-20pF)	1824A127

*3: ZSD-15A II, ZSD-300A/M, ZSG-200A, and FPD-400 is not available from Canon stock.

APPLICABLE KIT DETAIL

	Kit Name	Zoom		Focus	
		System	Component	System	Component
Zoom Servo Only	—	ZSD-15	16	—	—
	—	ZR-1	17	—	—
	—	ZR-2(A)	19, 20, 26	—	—
	—	ZR-2(B)	19, 21*	—	—
Semi-Servo	MS-15	ZSD-15	16**	FRC-15	1, 8, 9**
	MS-21	ZR-1	17	FR-2	1, 8, 10
	MS-21D	ZR-1D	18, 28	FR-2	1, 8, 10
	MS-22	ZR-2(A)	19, 20, 26	FR-2	1, 8, 10
Full Manual	FZC-1	FZC-1	5*, 8, 11	FR-2(w/o 1)	8, 10

*⑤&⑪ are not applicable to YH14x7.3 and YH16x7.
**In USA, ⑮ and ⑲ are available only as MS-15 kit configuration and not as individual products.
Recommended kit configuration.

REMOTE CONTROL LENS SERIES

The Canon Remote Control Series offers a wide variety of lenses and accessories that have been designed for various applications such as broadcasting, teleconference, distance learning, and other remote control purposes. The lenses provide quiet and fast servo control of Zoom, Focus, and Iris.

BROADCAST APPLICATIONS

HDTV



	HJ18ex28B ITS-ME	HJ24ex7.5B ITS-ME	HJ18ex7.6B ITS-ME	HJ14ex4.3B ITS-ME
Zoom Ratio	18x	24x	18x	14x
Image Size	2/3"	2/3"	2/3"	2/3"
Built-in Extender	2.0x	2.0x	2.0x	2.0x
Range of Focal Length (with Extender)	28~500mm 56~1000mm (2.0x)	7.5~180mm 15.0~360mm (2.0x)	7.6~137mm 15.2~274mm (2.0x)	4.3~60mm 8.6~120mm (2.0x)

HDTV



	KJ17ex7.7B ITS-ME	KJ22ex7.6B ITS-ME
Zoom Ratio	17x	22x
Image Size	2/3"	2/3"
Built-in Extender	2.0x	2.0x
Range of Focal Length (with Extender)	7.7~131mm 15.4~262mm (2.0x)	7.6~168mm 15.2~336mm (2.0x)

• Please refer to pages 27, 28, 29, and 32 for more detailed specifications.
• The 2x extender of ITS-ME model is manually operated. The ITS-RE model which has a motorized 2x extender is also available.

PRO-VIDEO APPLICATIONS

HDTV



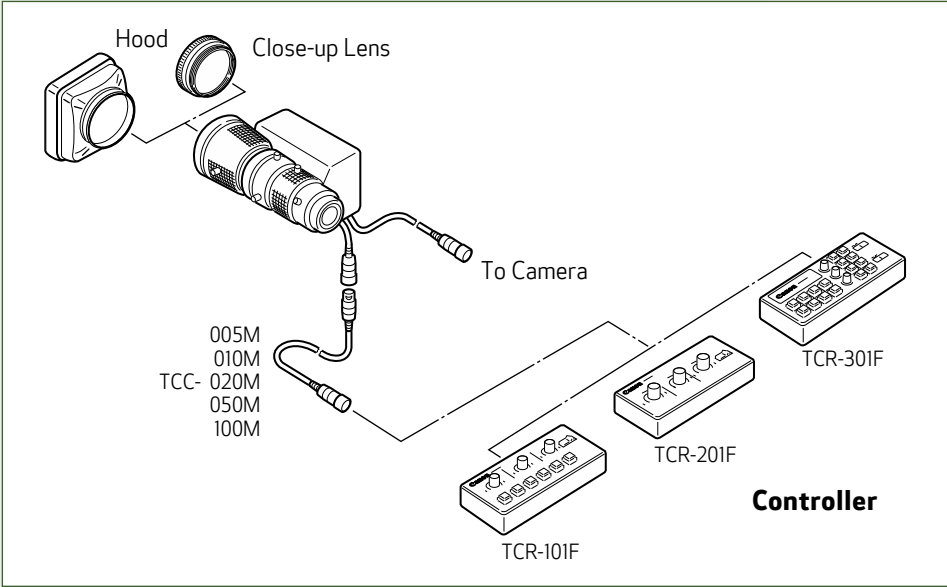
	KJ20x8.2B KTS	KH20x6.4 KTS*	KT20x5B KTS
Zoom Ratio	20x	20x	20x
Image Size	2/3"	1/2"	1/3"
Built-in Extender	N/A	N/A	N/A
Range of Focal Length	8.2~164mm	6.4~128mm	5~100mm

• Please refer to pages 33 and 34 for more detailed specifications.
*1: Specifically designed for Sony HDC-X300/X310.

CONTROL ACCESSORIES FOR REMOTE CONTROL LENSES

The Canon Remote Control TV Lenses and standard controller system are engineered to satisfy your image capture needs. These broadcast quality products can be used in applications which differ from typical video production applications, such as fast and quiet servo operations. Canon Remote Control TV Lenses accept three types of Canon standard controllers, as well as the standard remote control cables, which are designed to provide different types of Zoom, Focus, and Iris remote control. These lenses are also available with a simple interface for use with custom controllers.

SYSTEM CONFIGURATION



CONTROLLER

Speed Servo Controller



TCR-101F

Positional Servo Controller



TCR-201F

8 Position Preset Controller



TCR-301F

CLOSE-UP LENS

(Not available for HJ18ex/HJ14ex)

Four types (82CL-UP800H/82CL-UP1300H/105CL-UP900H/105CL-UP800HD) are available.

Please refer to page 44 for the applications.

REMOTE CONTROLLER

Three types (TCR-101F/TCR-201F/TCR-301F) are available.

CONNECTING CABLE

5m, 10m, 20m, 50m, and 100m cables are available.

Maximum cable length is 150m by connection of these cables.

EXTERNAL EXTENDER

(For 2/3" Lens Only)

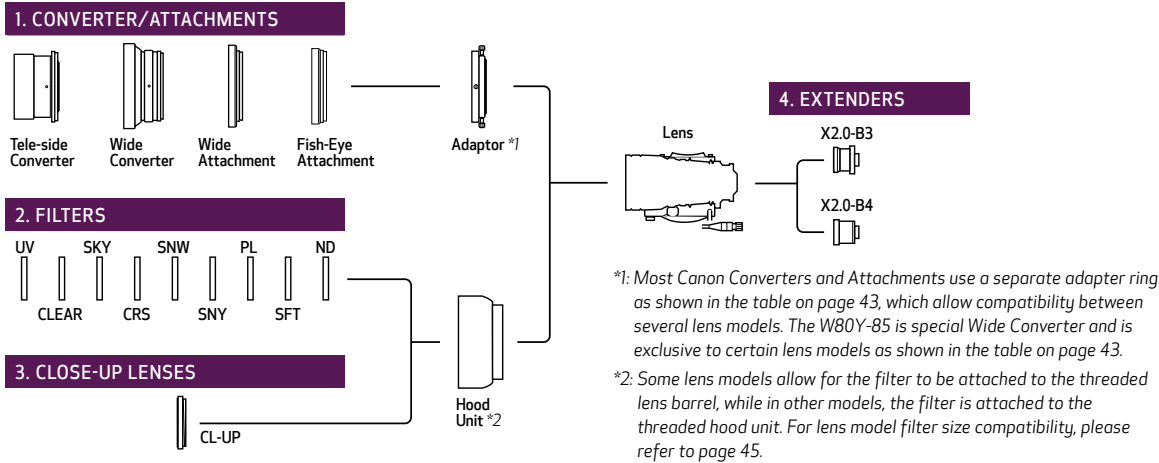
A 2x extender is available for telephoto shooting.

For the ITS-RE model of the Broadcast Remote Control Lenses and for the YJ20x8.5B ITS, the 2x extender is motorized and can be remote controlled.

Please inquire to Canon Sales Office for extender remote control interface.

OPTICAL ACCESSORIES FOR ENG/EFP LENSES

SYSTEM



CONVERTER/ATTACHEMENTS

TELE-SIDE CONVERTER

- The use of the telephoto converter would shift the focal length of a lens with a factor of 1.5x.
- F No. of the original lens is not affected.
- Only the telephoto side of the lens can be used. The picture corners are eclipsed at wide angle.
- The minimum object distance becomes 2.25x that of the original lens.

	M.O.D.	Eclipse Point
HJ24ex7.5B	1.8m	f:100mm
KJ17ex7.7B	1.35m	f:60mm
YJ20x8.5B	2.0m	f:80mm

WIDE CONVERTER

- The wide converter W80/W80Y-85 would shift the focal length of a lens with a factor of 0.8x.
- F No. of the original lens is not affected.
- The minimum object distance becomes 0.64x with the W80/W80Y-85.

	Master Lens	With Wide Converter
HJ24ex7.5B	7.5-180mm	6.0-144mm
KJ17ex7.7B	7.7-131mm	6.2-104.8mm
YJ20x8.5B	8.5-170mm	6.8-136mm

WIDE ATTACHMENT

- The zoom lens becomes a wider fixed focal length lens with the wide attachment.
- The use of the wide attachment would shift the focal length of a lens with a factor of 0.75x.
- Focus is adjusted by use of the macro lever.

	Master Lens	With Wide Attachment
HJ24ex7.5B	7.5-180mm	5.6mm
KJ17ex7.7B	7.7-131mm	5.8mm
YJ20x8.5B	8.5-170mm	6.4mm

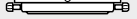
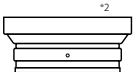
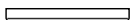
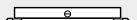
FISH-EYE ATTACHMENT

- The zoom lens becomes a fish-eye fixed focal length lens (distorted image) with the fish-eye attachment.
- The use of a fish-eye attachment would shift the focal length of a lens with a factor of 0.6x.
- Focus is adjusted by use of the macro lever.

	Master Lens	With Fish-Eye Attachment
HJ24ex7.5B	7.5-180mm	4.5mm
KJ17ex7.7B	7.7-131mm	4.6mm
YJ20x8.5B	8.5-170mm	5.1mm

OPTICAL ACCESSORIES FOR ENG/EFP LENSES

APPLICATIONS FOR ADAPTOR TYPE CONVERTERS/ATTACHMENTS

Converter/Attachment Type		Model Name	Applicable Lens					
			YJ20x8.5B KJ20x8.2B ^{*1} KH20x6.4 ^{*1} KT20x5 ^{*1}	KJ17ex7.7B ^{*1} KJ20x8.2B ^{*1} KH16ex5.7 ^{*1} KH20x6.4 ^{*1} KT17ex4.3B ^{*1} KT20x5 ^{*1} YJ20x8.5B	HJ18ex7.6B KJ17ex7.7B KH16ex5.7 KH20x6.4 KT17ex4.3B KT20x5	KH21ex5.7 ^{*1} KJ22ex7.6B ^{*1}	CJ20ex7.8B HJ24ex7.5B KH21ex5.7 KJ22ex7.6B	
Front Lens Diameter			φ 85mm			φ 98mm		
Tele-side Converter		T15- II						
		T15HG						
		Adaptor 85 III						
		Adaptor 98 II						
Wide Converter		W80Y-85						
		W80- III B						
		W80HG						
		Adaptor 85 III						
		Adaptor 98 II						
Wide Attachment		WA75- II						
		WA75HG						
		Adaptor 85 III						
		Adaptor 98 II						
Fish-eye Attachment		FEA- III B						
		FEA60HG						
		Adaptor 85 III						
		Adaptor 98 II						

*1: The HG series accessories offer higher optical performance. *2: The drawing is an image of the W80- III B.

• When purchasing, please specify model name of both Body and Adaptor.

• It is possible to use Body and Adaptor in different combinations, but it is impossible to use in combinations not shown in the above table.

MOUNT CONVERTORS FOR DIFFERENT IMAGE FORMAT SIZE CAMERAS

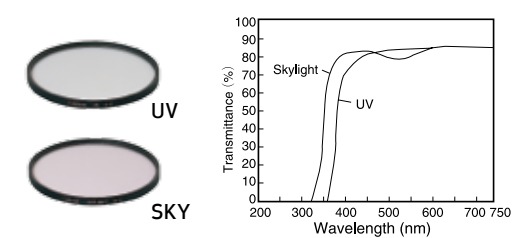
Canon offers a variety of Mount Converters to be used between a lens and a camera of different image format sizes. Each converter will extend the effective Angular Field of View of the associated lens according to the Shift Ratio listed below.

	Converter	Image Size Conversion			Electronic Conversion
		Lens*3	Camera	Shift Ratio to Telephoto Side	
	LO-32BMT	2/3" B4 Mount	1/2" Sony*4	Approx. 1.4x	N/A
	LCV-40B	2/3" B4 Mount	1/2 Standard Mount*5	Approx. 1.4x	N/A
	LCV-42T	2/3" B4 Mount	1/3" Standard Mount	Approx. 1.8x	N/A
	LCV-41E	2/3" B4 Mount	Sony PMW-EX3	Approx. 1.4x	Lens Cable (12 pin) EX3 Hot Shoe (14 pin)
	LCV-20E	1/2" *6	Sony PMW-EX3	N/A	Lens Cable (12 pin) EX3 Hot Shoe (14 pin)

*3: The converters are to be used with lenses weighing less than 4.4 lbs (2.0kg). *4: Sony's Hot Shoe mount camera, excluding PMW-EX3. *5: 1/2" Camera of standard type mount (Panasonic, JVC, Grass Valley). *6: Only applicable to KH10ex/KH16ex/KH21ex. The other 1/2" mount lenses are not available.

FILTERS

UV/CLEAR/SKY LIGHT FILTER



- A UV (ultraviolet) filter is nearly colorless. It absorbs short-wavelength ultraviolet rays that the naked eye cannot see.
- A Skylight Filter has a light pinkish color. Used when shooting on clear days, it removes ultraviolet, and prevents natural light from giving a bluish-green cast to shaded foliage, etc.
- These filters are also advisable to protect the front lens surface.

POLARIZED LIGHT FILTER

- 
- A polarizer is used to intercept light reflected from the surface of water or glass.
 - A polarizer is screwed into the threads of the hood, turned, and stopped in the position in which the reflected light is removed.

SOFTEN FILTER

- 
- A Soft-Focus Filter has a mat-like surface that imparts a soft, misty effect to the entire picture.
 - Soft-Focus Filters are frequently used for lyric scenery shots.

CROSS/SNOW CROSS/SUNNY CROSS FILTER



- A Cross Filter creates a cross or star of light by scattering rays from a strong light source in the subject in a radial pattern. The brighter and more point-like the subject is, the better the effect is. Cross Filters are often used to enhance night scenery or stage show broadcasts.

TYPES OF CROSS FILTER

- Cross Filter: Scatters light in a four-pointed cross.
- Snow Cross Filter: Scatters light in a six-pointed star.
- Sunny Cross Filter: Scatters light in an eight-pointed star.

ND4/ND8 FILTER

- 
- An ND (Neutral Density) Filter uniformly reduces light of all wavelengths which enters a lens.
 - It is used when the subject is too bright for the light to be adjusted by the diaphragm alone.
 - An ND Filter is also effective to create a shallow depth of field.

ND Filter Type	Transmittance	Density
ND4	25%	0.6
ND8	12.5%	0.9

CLOSE-UP LENSES

- 
- A close-up lens is used to shorten the M.O.D.* of the master lens for close-up shooting.
 - The maximum object distance becomes the focal length of the close-up lens.
 - The minimum object distance is calculated by the following formula:
New minimum object distance = $fc \times S / (fc + S)$
fc = Focal length of the close-up lens
S = M.O.D.* of the master lens

IMAGING RANGE FOR KJ17ex7.7B AND YJ20x8.5B WITH CLOSE-UP LENSES

		82CL-UP800H				82CL-UP1300H			
		Tele end : 131mm		Wide end : 7.7mm		Tele end : 131mm		Wide end : 7.7mm	
KJ17ex7.7B (16:9)	Focusing Scale (mm)	∞	0.6	∞	0.6	∞	0.6	∞	0.6
	Object Distance (mm)	800	343	800	343	1300	411	1300	411
	Object Dimensions (mm)	58x33	24x14	989x556	376x212	95x53	29x16	1634x919	455x256
YJ20x8.5B (4:3)		Tele end : 170mm		Wide end : 8.5mm		Tele end : 170mm		Wide end : 8.5mm	
		Focusing Scale (mm)		Object Distance (mm)		Object Dimensions (mm)			
YJ20x8.5B (4:3)	Focusing Scale (mm)	∞	0.9	∞	0.9	∞	0.9	∞	0.9
	Object Distance (mm)	800	420	800	420	1300	530	1300	530
	Object Dimensions (mm)	41x31	20x15	816x609	390x293	67x50	26x20	1341x1006	494x371

Model	Applicable Lenses
82CL-UP800H	YJ20x8.5B, KJ17ex7.7B, KJ20x8.2B, KH16ex5.7, KH20x6.4, KT17ex4.3B, KT20x5
82CL-UP1300H	YJ20x8.5B, KJ17ex7.7B, KJ20x8.2B, KH16ex5.7, KH20x6.4, KT17ex4.3B, KT20x5
105CL-UP900H	KH21ex5.7*, KJ22ex7.6B*
105CL-UP800HG	CJ20ex7.8B, HJ24ex7.5B, KH21ex5.7, KJ22ex7.6B*

*M.O.D. = Minimum Object Distance.
∞ = Infinite
*The HD quality accessories offer higher optical performance.

APPLICATION OF FILTERS

Filter Type	Model Name	APPLICABLE LENSES						
		CJ12ex4.3B HJ18ex28B HJ21ex7.5B HJ14ex4.3B KJ10ex4.5B KH10ex3.6	HJ40x148 HJ40x10B	J35ex15B J35ex11B	KJ13x6B KH13x4.5 YJ13x6B HJ17eX6.2B	CJ20ex7.8B HJ24ex7.5B HJ22ex7.6B KJ22ex7.6B KH21ex5.7	HJ18ex7.6B HJ15ex8.5B KJ17ex7.7B KH16ex5.7 KJ20x8.2B KH20x6.4 KT17ex4.3B KT20x5 YJ20x8.5B	KT14x4.48 YH16x7
Hood Unit Thread Size		127mm P0.75	—	—	105mm P1	105mm P1	—	82mm P0.75
Lens Barrel Thread Size		—	127mm P0.75	125mm P1	—	94mm P1	82mm P0.75	72mm P0.75
UV	UV/127P0.75	●	●					
	UV/105P1				●	●		
	UV/94P1					●		
	UV82P0.75						●	●
Clear	CL/127	●	●					
	CL/125			●				
Sky Light	SKY/105P1				●	●		
	SKY/82P0.75						●	●
Cross	CRS/127P0.75	●	●					
	CRS/105P1				●	●		
	CRS/82P0.75						●	●
Snow Cross	SNW/127P0.75	●	●					
	SNW/105P1				●	●		
	SNW/82P0.75						●	●
Sunny Cross	SNY/127P0.75	●	●					
	SNY/105P1				●	●		
	SNY/82P0.75						●	●
Polarized Light	PL/127P0.75	●	●					
	PL/105P1				●	●		
	PL/82P0.75						●	●
Soften	SFT/127P0.75	●	●					
	SFT/105P1				●	●		
	SFT/82P0.75						●	●
ND	ND8/127P0.75	●	●					
	ND4/82P0.75						●	●
	ND8/105P1				●	●		
	ND8/82P0.75						●	●

Note: Hood Unit Thread Filter and Lens Barrel Thread Filter cannot be mounted together because of mechanical interference.

EXTENDERS



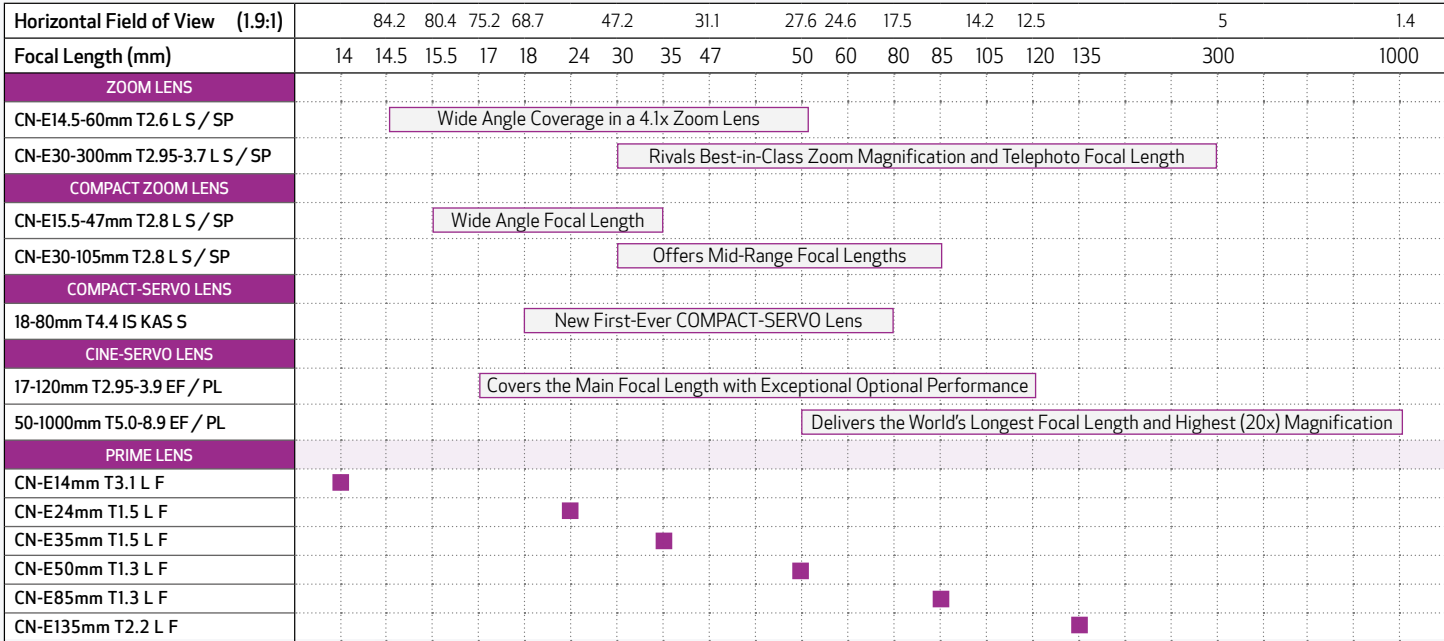
- An extender X2.0-B4 is mounted between the camera and the lens to enlarge the image of the subject.
- It doubles the focal length of the master lens, making it into a more telephoto lens.
- The 2.0x Extender also doubles the F-number.

YJ20x8.5B	Focal length	Master Lens	With Extender
		8.5~170mm	17~340mm
YJ20x8.5B	F-number	Master Lens	With Extender
		1.8~2.7	3.6~5.4

*Only for 2/3" SD Lens.

Model	Code	Applicable Lenses
X2.0-B4	1823A002	Applicable to all B4 type mount Canon 2/3" lenses.

DIGITAL CINEMA LENSES



- Canon introduces a full line-up of Zoom and Prime lenses which are designed and engineered to meet or exceed the exacting standards of cinematographers.
- The lenses are compatible with the arising large format cameras. Zoom lenses are available in both PL or EF mount while the Prime lenses are available in EF mount only.

DIGITAL CINEMA LENSES

ZOOM LENS SERIES



Cine Zoom Lens		CN-E14.5-60mm T2.6 L S/SP		CN-E30-300mm T2.95-3.7 L S/SP	
Mount		EF	PL	EF	PL
Focal Length		14.5-60mm		30-300mm	
Zoom Ratio		4.1x		10x	
Max. Relative Aperture (T-Number)		1:2.6 at 14.5-60mm		1:2.95 at 30-240mm / 1:3.7 at 300mm	
Iris Blades		11		11	
Angle of View	1.9:1 26.2×13.8mm	84.2°x50.9° at 14.5mm 24.6°x13.1° at 60mm		47.2°x25.9° at 30mm 5.0°x2.6° at 300mm	
M.O.D.* (from image sensor)		0.70m / 2'4"		1.5m / 5'	
Object Dimensions at M.O.D.*	1.9:1 26.2×13.8mm	71.2x37.5cm at 14.5mm 16.4x8.6cm at 60mm		107.9x56.8cm at 30mm 10.5x5.6cm at 300mm	
Front Diameter		ø136mm		ø136mm	
Approx. Size (W×H×L)		5.35x6.42x12.83 in. (136.0x163.1x326.0mm)	5.35x6.42x12.52 in. (136.0x163.1x318.0mm)	5.67x6.58x13.78 in. (144.0x167.1x350.1mm)	5.67x6.58x13.47 in. (144.0x167.1x342.1mm)
Approx. Weight		9.9 lbs (4.5kg)		12.79 lbs (5.8kg)	
Pitch of Follow Focus Gear		0.8		0.8	

*M.O.D. = Minimum Object Distance.

COMPACT ZOOM LENS SERIES



Cine Zoom Lens		CN-E15.5-47mm T2.8 L S/SP		CN-E30-105mm T2.8 L S/SP	
Mount		EF	PL	EF	PL
Focal Length		15.5-47mm		30-105mm	
Zoom Ratio		3x		3.5x	
Max. Relative Aperture (T-Number)		1:2.8 at 15.5-47mm		1:2.8 at 30-105mm	
Iris Blades		11		11	
Angle of View	1.9:1 26.2×13.8mm	80.4°x48.0° at 15.5mm 31.1°x16.7° at 47mm		47.2°x25.9° at 30mm 14.2°x7.5°cm at 105mm	
M.O.D.* (from image sensor)		0.5m / 1'8"		0.6m / 2'	
Object Dimensions at M.O.D.*	1.9:1 26.2×13.8mm	47.6x25.1cm at 15.5mm 15.4x8.1cm at 47mm		35.3x18.6cm at 30mm 10.2x5.4cm at 105mm	
Front Diameter		ø114mm		ø114mm	
Approx. Size (W×H×L)		4.49x4.92x8.74 in. (114.0x125.0x222.0mm)	4.49x4.92x8.43in. (114.0x125.0x214.0mm)	4.49x4.92x8.58 in. (114.0x125.0x217.9mm)	4.49x4.92x8.26 in. (114.0x125.0x209.9mm)
Approx. Weight		4.85 lbs (2.2kg)		4.85 lbs (2.2kg)	
Pitch of Follow Focus Gear		0.8		0.8	

*M.O.D. = Minimum Object Distance.

DIGITAL CINEMA LENSES



DIGITAL CINEMA LENSES

Easy-to-Read Controls

Comfortable Usability

Support Industry-Standard Cameras

Inner Focus

Light, Compact

Unified Front Lens Diameter, Gear Position

Zoom Lens Series



Compact Zoom Lens Series



Flange-Back Adjustment Mechanism

Attractive Blurring

TIME LENSES: HIGHLIGHTS

Ready for Full-size 35mm Sensors

Fast Aperture

Unified Front Lens Diameter, Gear Position

Prime Lens Series



Attractive Blurring

**Accepts 105mm filters
(except for 14mm)**

Comfortable Usability

(except for 14mm)

PL or other individual filters 105mm in diameter can be attached to the end of the lens, enabling filter work in handheld shooting or other scenarios without using a matte box

DIGITAL CINEMA LENSES

CINE-SERVO LENS SERIES



Cine Zoom Lens		CINE-SERVO 17-120mm T2.95-3.9*		CINE-SERVO 50-1000mm T5.0-8.9	
Mount		EF	PL	EF	PL
Focal Length		17mm-120mm		50-1000mm	
Zoom Ratio		7x		20x	
Max. Relative Aperture (T-Number)		1:2.95 at 17-91mm 1:3.9 at 120mm		1:5.0 at 50-560mm 1:8.9 at 1000mm	
Iris Blades		11		11	
Angle of View	1.9:1	75.2° x 44.2° at 17mm		27.6° x 15.7° at 50mm	
	26.2x13.8mm	12.5° x 6.6° at 120mm		1.4° x 0.8° at 1000mm	
M.O.D.* (from Image Plane)		0.85m / 2.8'		3.5m / 11.5'	
Object Dimensions at M.O.D.*	1.9:1	92.1 x 48.5cm at 17mm		148.3 x 78.1cm at 50mm	
	26.2x13.8mm	12.7 x 6.7cm at 120mm		7.8 x 4.1cm at 1000mm	
Front Diameter		ø114mm		ø136mm	
Approx. Size (W×H×L)		6.86x4.92x 10.35 in. (174.2x125.x262.9mm)		6.89x6.72x16.27 in. (175x170.6x413.2mm)	
Approx. Weight		6.39 lbs (2.9kg)		14.55 lbs (6.6kg)	
Pitch of Follow Focus Gear		0.8 / 0.5		0.8 / 0.5	

*M.O.D. = Minimum Object Distance.
*LH-CN7/02 Supporter is an Optional Accessory.

CINE-SERVO LENSES: HIGHLIGHTS

CINE-SERVO 50-1000mm: Highlights

- Designed for Super35mm Large-Format Single-Sensor Cameras
- Robust and Durable Housing Structure
- 20x Zoom Magnification
- Built-In 1.5x Optical Extender
- Ultra Telephoto 50-1000mm Focal Range

CINE-SERVO 17-120mm: Highlights

- High Durability and Ruggedness
- 7x Zoom Magnification
- Wide 17-120mm Focal Range
- Ergonomic Design
Ergonomically designed drive unit for ease of operation

Removable Servo Drive Unit
Removable servo drive unit with various user setting capabilities

Accessory Connectors
Three 20-pin connectors for externally operated accessories and a 16-bit metadata output for virtual studio systems

Multiple Communication Capability with Compatible Cameras

11-Blade Iris Provides Natural Bokeh

Designed for Cinema and Broadcast Applications

Compact and Lightweight
Compact and lightweight lens available in an EF mount and PL mount that can be converted at an authorized Canon service facility

4K Ready
High optical performance with support for Super35mm large format cameras

NEW COMPACT-SERVO LENS

Refined Iris Mechanism
- Seamless Manual Control Capability
- 9-Blade Iris
- Iris Closing

Image Stabilization

4.4x Zoom Magnification

Minimized Focus Breathing

Compatible with EF-mount Cameras

Supports a Wide Range of Accessories

Practical Layout of Switches

Compact and Lightweight for Increased Mobility

Dual Pixel CMOS Auto-Focus (DAF)

Enhanced Servo Drive Unit
- Servo Control Capability for all Zoom, Focus, and Iris
- Compatible with broadcast style servo lens controllers
- Optional ZSG-C10 Grip

High Level 4K Optical Performance

4K

COMPACT-SERVO
CN-E18-80mm T4.4 L IS KAS S

COMPACT-SERVO 18-80MM T4.4 EF LENS

Canon's first-ever COMPACT-SERVO 18-80mm T4.4 EF lens combines high-level 4K optical performance and appealing cost in a compact, lightweight lens (2.7lbs) specially engineered for the do-it-all mobile cinematographer. Bringing together the optical benefits of Canon's EF lenses with the video shooting features and functionality of Canon's Cinema lenses, the COMPACT-SERVO 18-80mm boasts a 4.4x zoom magnification, a 9-Blade aperture diaphragm to help ensure an attractive Bokeh effect, and is Canon's first Cinema style lens to incorporate an Image Stabilization function. Full external servo controls (Zoom, Focus, and Iris) along with manual operations support a range of video production styles including ENG style "run-and-gun," (when used with the optional ZSG-C10 grip). The COMPACT-SERVO 18-80mm can be ideal for drama, documentary, and other broadcast productions.



COMPACT-SERVO LENS		CN-E18-80mm T4.4 L IS KAS S
Mount		EF
Focal Length		18-80mm
Zoom Ratio		4.4x
Max. Relative Aperture (T-Number)		1:4.4 at 18-80mm
Iris Blades		—
Angle of View	1.9:1	68.7° x 41.9° at 18mm
	26.2x13.8mm	17.5° x 9.9° at 80mm
M.O.D.* (from image sensor)		0.5m / 1'8"
Object Dimensions at M.O.D.*	1.9:1	43.4 x 24.3cm at 15.5mm
	26.2x13.8mm	9.5 x 5.3cm at 47mm
Front Diameter		84mm
Approx. Size (W×H×L)		3.67x4.22x.34 in. (93.4x107.2x182.3mm)
Approx. Weight		2.64 lbs (1.2kg)
Pitch of Follow Focus Gear		0.8

*M.O.D. = Minimum Object Distance.

CINE-SERVO LENS / COMPACT-SERVO LENS ACCESSORIES

CATEGORY	MODEL #	COMMENTS	CN7x17 KAS S/E1 CN7x17 KAS S/P1	CN20x50 IAS H/E1 CN20x50 IAS H/P1	CN-E18-80mm T4.4 L IS KAS S
Focus Demands	FPD-400D	No additional cable required	●	●	●
	FDJ-D02	BDC-11 20-pin to 18-pin cable required	●	●	-
	FDJ-P01	BDC-21 20-pin to 12-pin cable required	●	●	-
Zoom Demands	ZSD-300D	No additional cable required	●	●	●
	ZDJ-D02	BDC-11 20-pin to 18-pin cable required	●	●	-
	ZDJ-P01	BDC-21 20-pin to 12-pin cable required	●	●	-
Demand Cables	BDC-21	20-pin to 12-pin cable for FDJ-P01, ZDJ-P01	●	●	-
	BDC-11	20-pin to 12-pin cable for FDJ-D02, ZDJ-D02	●	●	-
Clear Filters	CL/112MM	112mm diameter filter	● (Attaches to lens)	-	-
	CL/127MM-H	127mm diameter filter	● (Attaches to lens hood)	● (Attaches to lens)	-
Lens Supporter	LH-CN7/02	Optional supporter allows for easier focus ring access and operation	●	-	-
Power Supply Adaptor Cable	C-ZLPRO*	Battery power tap cable	●	●	-

*Made by IDX.

• Can not connect multiple controllers (only one connector). Can not connect additional controller if grip control is enabled.

• Canon zoom demands are equipped with buttons and switches that activate lens/camera functions such as VTR, Preset etc. Those functions are currently not compatible with our cameras or the 18-80 compact servo lens.

FOCUS CONTROLLER

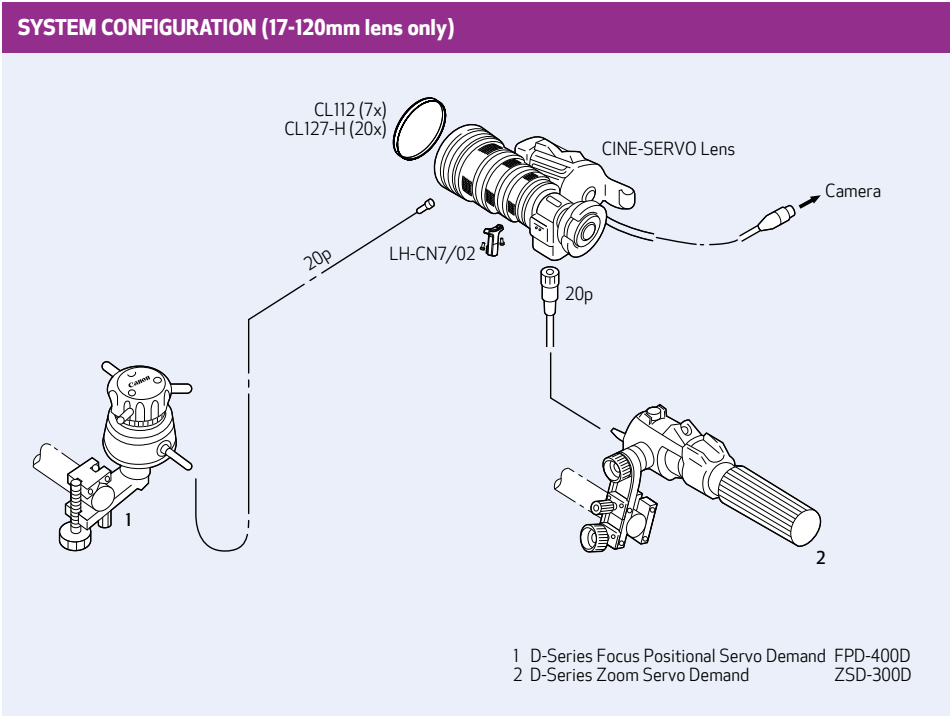


FPD-400D

ZOOM CONTROLLER



ZSD-300D



HIGH DEFINITION PTZ CAMERAS



EVERCAM XU-81 AND EVERCAM XU-81W

ENGINEERED TO LAST

As the worldwide transition to HD imaging continues to accelerate, many video content creators—including broadcasters, cable networks, Houses of Worship, and diverse businesses are seeking cost-effective, turnkey, remotely-controllable Pan-Tilt-Zoom HD camera systems to provide unique visual perspectives while helping to ensure high image quality of the production. In order to satisfy these demands, Canon has combined its highly advanced technology, developed over many years, to successfully engineer the EVERCAM XU-81 and XU-81W.

The XU-81 and XU-81W feature a 1/3" CMOS imaging sensor with 2.1 megapixels and an optical 20x zoom lens (along with the 12x digital zoom) that supports Auto Focus. They achieve astounding performance that enables them to be used in high end production applications. Along with the aluminum die-cast body, they also feature a dust-proof and water-proof construction and are small and lightweight enough to be carried around. These features allow these multi-use products, with their excellent durability, to be installed in virtually any location, whether indoors or outdoors.

Canon is firmly committed to researching and developing cutting-edge technological innovations in an effort to deliver innovative products capable of reproducing some of the world's most beautiful images.

**XU-81**

**XU-81W**
With wiper and ND filter for outdoor installation

BU-47H

OUTDOOR REMOTE CONTROL PAN-TILT SYSTEM

To meet the diverse needs of outdoor broadcasters, cable networks, businesses, industrial entities, weather monitoring, and traffic POV, Canon has created a solution for cost-effective, turnkey, remotely-controllable Pan-Tilt-Zoom (PTZ) HD Camera systems allowing users to extend creative flexibilities. Canon has harnessed multiple unique technologies and experience in HD optics and digital cameras, robotics, and control software to produce a cost-effective, integrated HD lens-camera PTZ product offering outstanding HD picture quality. The BU-47H is a rugged yet elegant outdoor PTZ system following a legacy of decades of Canon expertise in designing such systems. A sister product, the BU-51H, has a design tailored for indoor applications.



HD PTZ CAMERAS



	BU-47H	EVERCAM XU-81	EVERCAM XU-81W
Operation Condition	Outdoor	Indoor	Outdoor
Operation Angle	Pan: 340° Tilt: + 30°~-50°	Pan: ±180° Tilt: +220°~-40°	Pan: ±180° Tilt: +220°~-40°
Operation Speed	Panning: 0.5° ~ 25°/s Tilting: 0.3° ~ 20°/s	Pan/Tilt: 0.3~40°/s (normal speed mode) Pan/Tilt: 0.3~60°/s (high speed mode)	Pan/Tilt: 0.3~40°/s (normal speed mode) Pan/Tilt: 0.3~60°/s (high speed mode)
Repeatability	Less than ±10 arc degrees	Within ±10 arc degrees	Within ±10 arc degrees
Wiper	Built-in Electric Wiper	None	Built-in Electric Wiper
Mic Input	Jack provided, pedestal section	Waterproof Microphone: lower part of the camera / 0dBm / 600 unbalanced output (with limiter)	Waterproof Microphone: lower part of the camera / 0dBm / 600 unbalanced output (with limiter)
Input/Output Connectors	DC terminal, Control (RS-422), SDI out, SD composite, Genlock, Aux out	5mm DC barrel-type; DB-9 (RS-232), RJ-45 (RS-422), HD-SDI out, Genlock, SD composite	5mm DC barrel-type; DB-9 (RS-232), RJ-45 (RS-422), HD-SDI out, Genlock, SD composite
Video Output	HD-SDI (embedded audio) BNC output x 1 (receptacle unit) SD analog composite BNC output x 1	HD: BNC (HD-SDI), SD: BNC (Composite Monitor)	HD: BNC (HD-SDI), SD: BNC (Composite Monitor)
Genlock Input	BNC (receptacle unit) (tri-level/black burst)	BNC (BB Sync/HD3value Sync)	BNC (BB Sync/HD3value Sync)
Operating Temperature	5°C to 40°C, less than 90% humidity (no condensation)	Ambient -15~40°C / ~90% (non-condensing)	Ambient -15~40°C / ~90% (non-condensing)
Wind Velocity-Resistance	Normal Operation: 0~55m/s Operation Possible: 55 ~ 78m/s * Non Destruction: 78 ~ 134m/s	Normal Operation: ~15m/s Operation Possible: ~30m/s Non Destruction: ~60m/s	Normal Operation: ~15m/s Operation Possible: ~30m/s Non Destruction: ~60m/s
Noise	NC55 below	NC30 (40°/s), NC45 (60°/s)	NC30 (40°/s), NC45 (60°/s) (when Wiper, ND Filter, and IRC Filter are not in operation)
Power Source	DC10.5~15V, 80W	DC12V±10%	DC12V±10%
Dustproof Waterproof Efficiency	IP45	IP55	IP55
Image Sensor	1/3" CMOS x 3 (HD CMOS PRO)	1/3" HD CMOS, total of ~ 2.1 million pixels	1/3" HD CMOS, total of ~ 2.1 million pixels
Range Of Focal Length / F No.	f=4.1-73.8mm/F1.6-2.8	f=4.7-94mm/F1.6-3.5	f=4.7-94mm/F1.6-3.5
Zoom Ratio	18x Optical Zoom (1.5x digital extender)	20x Optical Zoom (12x digital extender)	20x Optical Zoom (12x digital extender)
Dimensions (W x D x H) (Including Camera & Lens)	15.19x13.2x15.35 in. (386x337x390 mm)	8.54x8.54x12.24 in. (217x217x311 mm (without projection))	8.54x8.54x12.24 in. (217x217x311 mm (without projection))
Weight (Including Camera & Lens)	37.4 lbs (Approx. 16.9kg)	14.55 lbs (6.6kg) (without ND Filter and Wiper)	14.55 lbs (6.6kg) (without ND Filter and Wiper)

*Some functions may be limited depending on operating environment.

INVALUABLE LEARNING
AND TRAINING RESOURCES



Learning and experience is another important cornerstone of Canon's commitment to professional cinematographers. Whether working online, in production, on a studio lot, or as part of a remote shoot, we are here to provide you with the essential resources that you need to remain current and keep your creative passion alive.

Canon Live Learning (CLL) seminars and workshops are conducted nationwide including in our Hollywood Professional Technology and Support Center. Our classes are taught by professional trainers and industry experts, as well as Canon's renowned and experienced Explorers of Light. Covering a wide range of still and cinematic topics, ranging from techniques through equipment selection to in-depth system

configuration, CLL events offer professionals and enthusiasts alike the opportunity to sharpen their skills in a number of immersive hands-on settings.

Schedules are available at: usa.canon.com/canonlivelearning.

And because the Canon Digital Learning Center website is tablet friendly, our encyclopedic online materials are always accessible 24/7 via the internet, anywhere in the world. Think of it as the "Anytime, Anywhere" resource for professionals, enabling you to hit the set running with the confidence and know-how to make the very most of the Cinema EOS system. Watch product tutorials, practice camera menu simulators, and be inspired by filmmakers and cinematographers using Canon gear to bring their projects to life.

Learn more at: learn.usa.canon.com



FOCUSED ON
PROFESSIONALS

Since 1958, Canon has been delivering world class service & support to the broadcast industry. We understand your needs are critical, which is why Canon provides unique customer service and support programs specifically for professionals.

- On-site service available
- Fast repair processing, minimal downtime
- Direct, personal support from industry experts
- Nationwide service network
- State-of-the-art facilities
- Customized services for unique needs

For more information, call 1-800-423-LENS.

