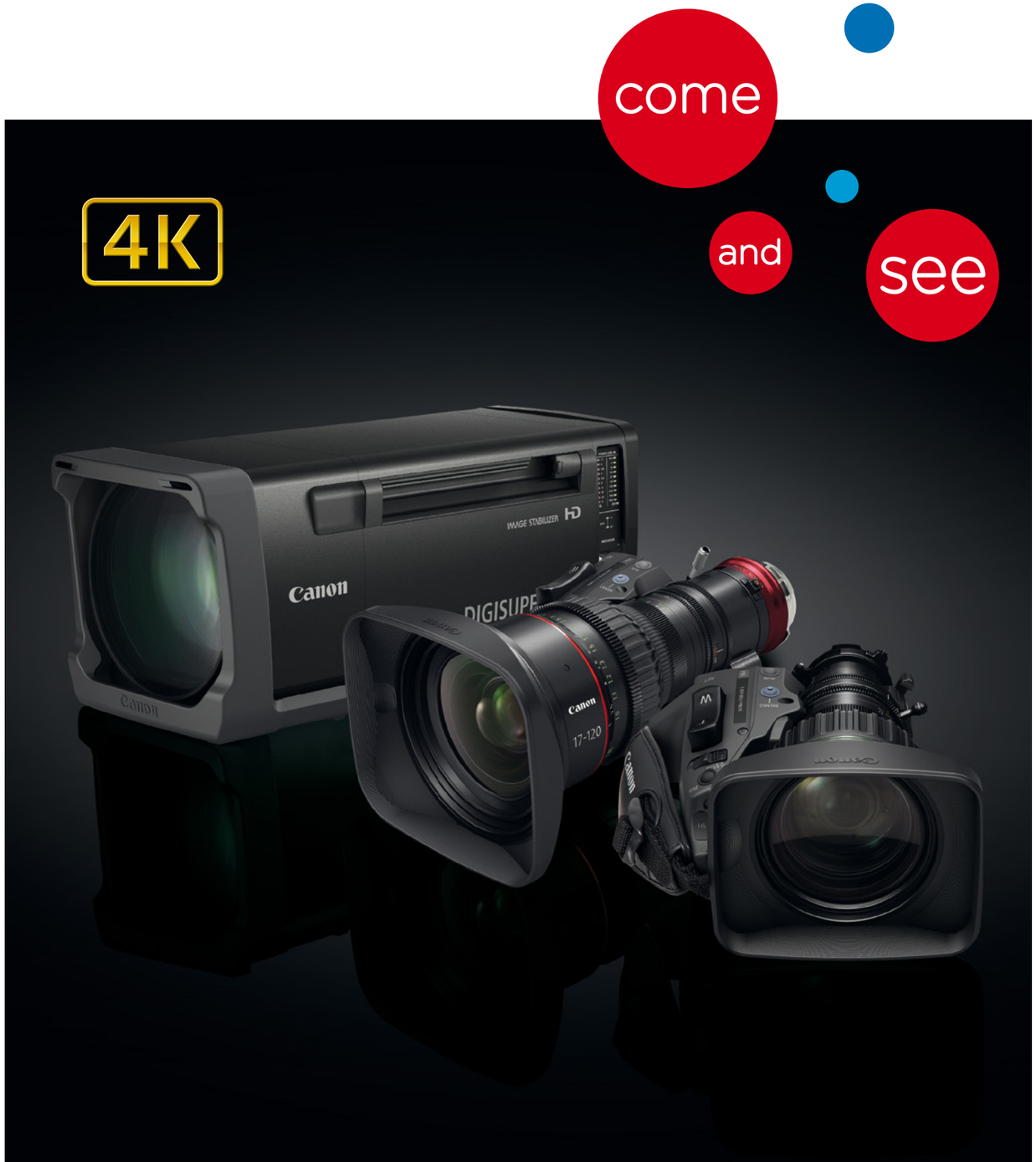
Broadcast Television Lenses 2016/2017



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Pioneering excellence in broadcast lenses

Canon is a pioneer in the design of broadcast lenses. It was more than 50 years ago that we introduced the first BCTV lens – the “Field Zoom IF-1” with a 6.7x zoom range, which was the highest in the industry at the time. Since then we have energetically advanced the art of high-end optical design on many fronts – working in close collaboration with international broadcasters and producers to develop innovative products and enhance customer satisfaction. Today we offer an exciting range of innovative high-end imaging products that stimulate creativity and deliver superb quality results, as we continue our pioneering pursuit of excellence into the 21st century.

Emmy Award

The National Academy of Television Arts and Sciences awarded Canon an EMMY® in 2005 in recognition of our engineering creativity in Lens Technology Developments for Solid State Imager Cameras in High Definition Formats. We also received an EMMY® in 1996 for “Implementation In Lens Technology to Achieve Compatibility with CCD Sensors”.

Customer Satisfaction

Canon is committed to total Customer Satisfaction. To meet this commitment we aim 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/or service technicians are ready to support you at these locations.

Broadcast Television Lenses






BEYOND 50 YEARS
INNOVATION
In TV Optics Since 1958
Toward 100 years anniversary

Since the introduction of our first BCTV lens more than 50 years ago, Canon has been developing its know-how and technologies – so that today we offer an extensive range of high end lenses with the flexibility to suit various shooting situations and meet the exacting demands of today's creative professionals.

Understanding the Lens model naming conventions

Optical compensation for Prism cameras
B = with Optical Compensation (not Shown with 1/2" models)

Zoom/Focus Control

R = Zoom:Servo/Manual	Focus:Manual
A = Zoom:Servo/Manual	Focus:Servo/Manual
T = Zoom:Servo	Focus:Servo
L = Zoom:Manual	Focus:Manual

Special Function (1)
D = Digital Servo Drive for Portable Lens
E = Digital Servo Drive with Rotary Encoder
(Blank) Analog Servo Drive for Portable Lens

Special Function (2)
S = Digital Servo Drive Generation 4

Zoom Ratio

ENG/EFP Lenses	CJ	12x	4.3	B	I	A	S	E	–	S
Studio/Field Lenses	UJ	86x	9.3	B	IE				–	D

Image Size
UJ = 4K Field Lens for 2/3"
CJ = 4K Portable Lens for 2/3"
HJ = High Definition Portable Lens for 2/3"
KJ = High Definition Portable Lens for 2/3" (HDgc Series)
KH = High Definition Portable Lens for 1/2" (HDgc Series)
KT = High Definition Portable Lens for 1/3" (HDgc Series)
XJ = High Definition Studio/Field Lens for 2/3"
CN = Cinema Style Lens for S35mm (Full size for specific models)

Focal Length at wide end

Built-in Extender
IE = Built-in Extender
I = Built-in Extender
K = No Extender
V = Built-in 0.8x Shrinker
W = Built-in 0.8x Shrinker and 2x Extender

Iris Control
S = Iris Servo
L = Iris Manual

Special Function (2)
V = Built-in Image Stabilizer for Portable Lens
SC = Cine Style Lens
D = UHD-DIGISUPER Series for Field Lens
AF = Auto Focus Function

Canon's Epoch-making Technology

UHD/HDTV Lenses

Canon began developing lenses for the "HDTV System" more than 20 years ago and continues to lead the broadcast industry into the 21st century "DTV" era – most recently with the next generation of HDTV lenses and our pioneering Cinema EOS 4K lenses. The series are:

UHDxs 4K — 4K 2/3" Lens Series
Shown on Page 10-12.
- 4K 2/3" Premium Field Lens
- 4K 2/3" Field Lens
- 4K 2/3" ENG/EFP Lens

HDxs — HDxs Series
Shown on Page 14-18
- Studio/Field Lenses
- Compact Studio Lens
- EFP Lenses

HDXS — Portable HDxs Series
Shown on Page 24-28.
- ENG/EFP Lenses
- Built-in Optical Image Stabilizer Lens

HDGC — HDgc Series
Shown on Page 34-38.
- ENG Lenses for 2/3" Cameras
- ENG Lenses for 1/2" Cameras
- ENG Lenses for 1/3" Cameras

4K — EF Cinema Lens Series
Shown on Page 40-45.
- Zoom Lenses
- Prime Lenses
- Cine Servo Lenses

4K 2/3" Lens Series

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 been at the technological forefront with our 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 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 favours, 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 our 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.

Auto Focus Technology

To meet the increasing demand in broadcast HDTV production for highly accurate focusing, Canon has 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.

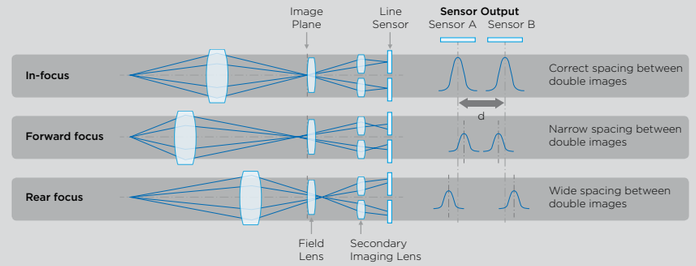

DIGISUPER 100AF


DIGISUPER 86AF


DIGISUPER 27AF

TTL-Secondary Image Registration Phase-detection System

The light transmitted through a pair of secondary imaging lenses focuses on separate sensors (as illustrated). The TTL-Secondary Image Registration Phase-detection System determines the positional relationship between the two images (See "d" in diagram right) to detect the amount and direction of defocusing.

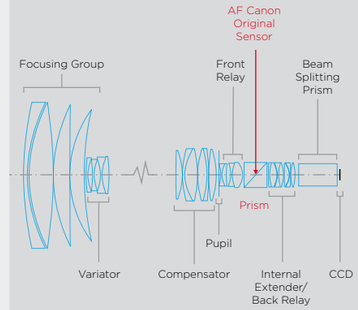


Features

- 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 viewfinder 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 chosen camera manufacturer
- Two operation modes – full time AF and Part Time AF – to meet needs of professional camera operators

Changeable AF frame

Layout of the elements



2 kinds of 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 Applications	Sporting event etc. To follow a moving object.	Studio production etc. To confirm the best focus position.

This article refers to Auto Focus Technology for the DIGISUPER HDTV Zoom Lenses listed below. For full lens specifications see Page 16,17 and 18

Canon's Epoch-making Technology

eIFxs, HDXS and HDGC Technology

In 2004, Canon introduced a new broadcast lens technology eIFxs, with the launch of the J22ex7.6B. Two aspects of the new technology are represented by the letter "e". One is "ecological design", as these lenses are harmless to the environment, the other "enhanced digital" technology, which improves the performance of the digital drive unit. These improvements are now also incorporated in the HDGC (IRSE S / IASE S model) and the HDXS lenses.

HDXS
eIFxs
HDGC

Enhanced Digital Drive

The eIFxs, HDXS and the HDGC (IRSE S / IASE S model) series are equipped with an information display and digital function selector, an X-Y axis switch, so that users can customise and optimise the enhanced digital functions much more easily and precisely.

- User settings are simple and easy to operate including: speed preset, frame presets (2 memory positions), shuttle shot, zoom track and new focus preset with IASD/IASE S lens
- Follow signal display for iris, zoom and focus (IASD/IASE S only) for virtual reality, robotic control and other uses
- User settings for zoom and focus curve mode offer precise control based upon user requirements
- AUX 1 and AUX 2 switches can be assigned to basic functions for enhanced memory capability
- A precise movement mode can be memorised for the zoom seesaw control, zoom demand control and preset control
- The drive unit can memorise 9 patterns of user-customised settings and also transmit the data between different drive units
- The self-diagnostic mode provides error messages
- The HDxs/e-IFxs/HDgc (IRSE S / IASE S model) Ergonomic Drive Unit is tilted at an ideal angle of 12.5° for good balance and comfort. An information display offers easy, precise and full customisation of enhanced digital functions, which are easily accessed and set via the Digital Function Selector, an X-Y axis switch located next to the display.

Information Display

Rotary Encoder

Canon offers a series of eIFxs / HDXS / HDGC (IRSE S / IASE S 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 superior 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 much more precise. Canon's unique 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

Sustainability is at the heart of Canon's Kyosei philosophy – living and working together for the common good – and we are always looking to further reduce our environmental impact.

The eIFxs / HDXS / HDGC series avoid using any materials or substances that are harmful to the environment. For example optical parts feature lead free glass, while mechanical parts are virtually free of all harmful products, such as cadmium, PBBS (Poly Bromo Bi Phenyls), PBDPE (Poly Bromo Di Phenyl Ethers) or mercury.


Lead Free Glass

Canon 3D Solution

Recognising the continuing requirement for 3D program origination, Canon has prioritised adoption of most of the standard HD lens series for 3D production systems. Originally this entailed using our original 16bit resolution encoders, while allowing off sets of zoom, focus and iris positions to compensate for the tracking of each position. However we now have a new solution for a simpler, low cost 3D production system with increased interoperability.

3D Lens Lineups

Canon's ergonomic Digital Drive Unit incorporates Canon-developed, ultra-compact rotary encoders capable of 0.1µm position detection, which produces 16-bit resolution of the positions of zoom, iris, and focus controls. This unique device allows for one zoom controller and one focus controller to simultaneously operate both lenses, while providing even higher interoperability and precision in the synchronisation of zoom, focus and iris positions of the lens pairs.


HJ14ex4.3B IASE


HJ18ex7.6B IASE S


HJ17ex6.2B IASE


HJ24ex7.5B IASE S


HJ21ex7.5B IASE A


HJ18ex28B IASE A


KJ22ex7.6B IASE


KJ17ex7.7B IASE


KJ10ex4.5B IASE A

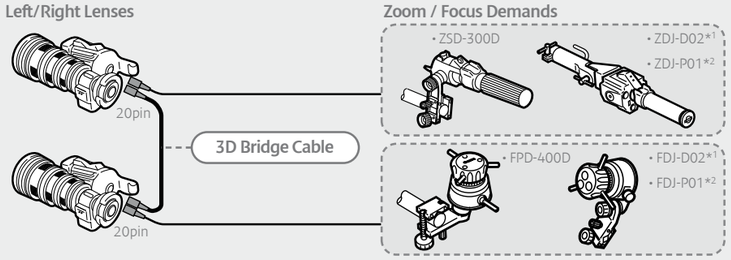
Lens Refinements for 3D

The "3D Lens Adjustment Software" makes stereoscopic tracking of the zoom, focus and iris even more precise. It allows appropriate offsets to be easily made using the Digital Drive Unit's display, to compensate for minor zoom and focus tracking differences between any two lens pairs. Using the software, Canon's synchronous lens control system doesn't require special controllers. All the servo controllers for digital servo lenses, as shown below, will be compatible by simply connecting the two lenses with a 3D Bridge Cable (BC-100), saving additional costs when implementing 3D production systems.

3D Lens Adjustment Software

3D Bridge Cable

System Configuration



*1 BDC-10 conversion cable is necessary to connect between ZDJ-D02 or FDJ-D02 (18pin) and Digital Drive Lens (20pin).

*2 BDC-20 conversion cable is necessary to connect between ZDJ-P01 or FDJ-P01 (12pin) and Digital Drive Lens (20pin).

Canon's Epoch-making Technology

Optical Image Stabilizer

The products with Optical Image Stabilizer technologies are shown with this legend on pages 12, 13, 22 and 24.

IMAGE STABILIZER

HJ15ex8.5B KRSE-V P.28

UHD DIGISUPER 86
UHD DIGISUPER 90
DIGISUPER 100AF
DIGISUPER 100
DIGISUPER 95 P.16

DIGISUPER 86AF
DIGISUPER 80 P.17

HJ40x10B IASD-V
HJ40x14B IASD-V P.24

Vari-angle Prism Image Stabilizer (VAP-IS)

Canon's portable HD production lens, the HJ15ex8.5B KRSE-V, incorporates an innovative built-in optical image stabilization system – the patented Vari-Angle Prism Image Stabilizer (VAP-IS) - that's designed to significantly enhance HD motion imaging on location shoots.

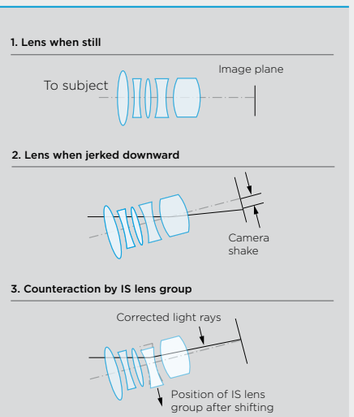
It delivers highly stable HD imagery – counteracting a wide range of disturbance frequencies that the lens-camera system may be subjected to in a variety of shooting environments. These can range from the very low frequencies encountered during handheld or shoulder-mount shooting by a walking or running camera operator, to the higher vibration frequencies associated with shooting from motorbikes, moving vehicles, and helicopters. Various stabilisation modes can be selected to address diverse shooting operations.

Optical Shift Image Stabilizer (Shift-IS)

Canon, renowned for its Optical Image Stabilization technologies, developed a built-in Optical Shift Image Stabilizer (Shift-IS) for broadcast field lenses to overcome image shaking at telephoto focal lengths. First introduced in the super telephoto DIGISUPER 86 xs zoom lens, Shift-IS is now used in the DIGISUPER 100, DIGISUPER 100AF, DIGISUPER 95, DIGISUPER 86AF, DIGISUPER 80, HJ40x10B IASD-V and HJ40x14B IASD-V.

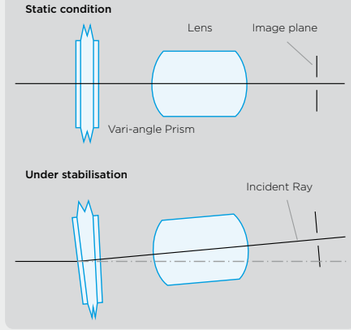
How the Optical Shift Image Stabilizer (Shift-IS) Works

When the lens moves, the light rays from the subject are deflected, relative to the optical axis, resulting in an unsteady image. 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 and send this information to a high-speed 32-bit microcomputer, which converts the information into drive signals for the IS lens group. The actuator then moves the IS lens group horizontally and vertically to counteract the image shake and maintain a stable picture. The Shift-IS component is located within the lens group, without increasing the overall size and weight of the master lens, and is most effective for lower frequency movements caused by platform vibration or wind effect.



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 unsteady images. The VAP-IS technology is incorporated within the lens optical system to intercept and correct such light ray deviations in real-time. The technology is based upon a flexible optical bellows that comprises two flat glass elements separated by a special liquid, forming a sealed mini-optical grouping within the overall lens element groupings. The bellow 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 gives a high degree of real-time correction to the angle of the light rays, ensuring their smooth arrival at the image plane.



HDgc Series

The details of the HDgc Series Lenses are shown on page 36

HDGC

Concept of the HDgc Series

The HDgc series supports the emergence of a new generation of cost-effective HD acquisition systems. Using Canon's unique technology, the new HDgc lenses exhibit high Modulation Transfer Function (MTF), high resolution and high contrast from the centre of the image to its extreme edges, while maintaining compact size and weight.

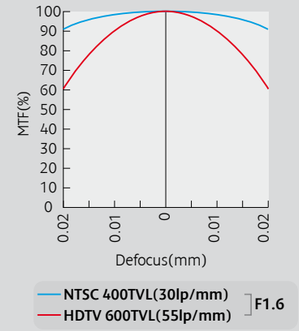
Quality of the HDgc Series

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

Comparison of the HDgc series with SDTV Lenses

In the HDTV system the pixel size is about half, so the spread of a point image caused by a spherical aberration, coma etc. will 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 01.

HDgc Lenses are specially designed with optical elements - such as "Hi UD Glass", "Aspherical Elements" and other special elements - that effectively minimise chromatic aberrations, while maintaining high MTF throughout the image.



Graph 01

	SD		HDgc
Test frequency of Broadcast camera	320 TV lines / 4MHz	up to 640 TV lines / 8MHz	Up to 800 TV lines
Test frequency of Broadcast Lens	24 lines / mm	Up to 48 lines / mm	Up to 74 linwes / mm
Actual Canon resolution of Broadcast lens	Up to 75 lines / mm		Up to 100 lines / mm

2/3” 4K Lens series

UHD DIGISUPER Series
for 4K System

Step up to 4K broadcasting with fully-featured high-quality 2/3” 4K field zoom lenses.

See page 15

UHDxs series
4K UHD lenses for portable cameras

Easily make the move to 4K ENG and studio applications with high quality 2/3” 4K wide and standard zoom lenses

See page 16

4K 2/3” Lenses

4K Premium

UHD DIGISUPER IMAGE STABILIZER

UHD DIGISUPER IMAGE STABILIZER

UHDxs

UHDxs

		UHD-DIGISUPER 86	UHD-DIGISUPER 90	CJ12x 4.3B	CJ20ex 7.8B
Model Number		UJ86x9.3B IESD	UJ90×9B IESD	CJ12ex4.3B IRSE S/IASE S	CJ20ex 7.8 IRSE S/IASE S
Zoom Ratio		86x	90×	12×	20×
Built-in Extender		2.0x	2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		9.3-800mm 18.6-1600mm	9-810mm 18-1620mm	4.3-52mm 8.6-104mm	7.8-156mm 15.6-312mm
Maximum Relative Aperture (with Extender)		1:1.7 at 9.3-340mm 1:4.0 at 800mm 1:3.4 at 18.6-680mm 1:8.0 at 1600mm	1:2.4 at 9-486mm 1:4.0 at 810mm 1:4.8 at 18-972mm 1:8.0 at 1620mm	1:1.8 at 4.3-40mm 1:2.4 at 52mm 1:3.6 at 8.6-80mm 1:4.8 at 104mm	1:1.8 at 7.8-108mm 1:2.6 at 156mm 1:3.6 at 15.6-216mm 1:5.2 at 312mm
Angular Field of View (with Extender)	**16:9 Aspect Ratio (9.6 x 5.4 mm)**	54.6° × 32.4°at 9.3mm 0.69° × 0.39°at 800mm 28.9°× 16.5°at 18.6mm 0.34°× 0.19°at 1600mm	56.1° × 33.4°at 9mm 0.68° × 0.38°at 810mm 29.9° × 17.1°at 18mm 0.34° × 0.19°at 1620mm	96.3°× 64.2° 10.5°× 5.9° 58.3°× 34.9° 5.3°× 3.0°	63.2°× 38.2° 3.5°× 2.0° 34.2°× 19.6° 1.8°× 1.0°
M.O.D. from Lens Front		3.0m	3.0m	0.3m	0.80m
Object Dimensions at M.O.D. (with Extender)	**16:9 Aspect Ratio (9.6 x 5.4mm)**	271.9 × 152.9cm at 9.3mm 3.3 × 1.9cm at 800mm 136.0 × 76.5cm at 18.6mm 1.7 × 1.0cm at 1600mm	287.9 × 161.9cm at 9mm 3.3 × 1.9cm at 810mm 144.0 × 81.0cm at 18mm 1.7 × 1.0cm at 1620mm	76.4 × 43.0cm at 4.3mm 6.0 × 3.4cm at 52mm 38.2 × 21.5cm at 8.6mm 3.0 × 1.7cm at 104mm	91.7 × 51.6cm at 7.8mm 4.8 × 2.7cm at 156mm 45.9 × 25.8cm at 15.6mm 2.4 × 1.4cm at 312mm
Approx. Size (WxHxL)		250.6 × 255.5 × 637.4mm	250.6 × 255.5 × 610mm	163.5 × 108 × 247.8mm	169.9 × 114.4 × 230.0mm
Approx. Mass		27.0kg	23.2kg	2.1kg	2.18kg
Protection Filter		✓	Optional	Optional	Optional
Built-in Optical Image Stabilizer		✓	✓	--	--
Auto Focus System		--	--	--	--

✓ Standard — Not Applicable

- Please refer to page 10, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adopted to SDTV cameras.
- M.O.D. = Minimum Object Distance
- Black colour cover lenses are also available as an alternative to the white colour lenses.

UHD DIGISUPER 86

UHD DIGISUPER 86 - our new, premium 4K flagship broadcast lens.
As our most refined lens designed to support 4K UHD broadcast systems, it boasts extremely high optical performance that surpasses even 4K criteria and, at the same time, embodies the ease of operation that are ideally suited for use in broadcast television production.

High zoom ratio and long focal length
While displaying performance that surpasses 4K, the lens has the high zoom ratio (86x) and long focal length (800 mm) desired by many in television production.

Optical performance that goes beyond 4K
This lens has outstanding optical performance that goes beyond 4K resolution, all the way from screen centre to the edges. Picture sharpness is maintained over the focal range of the lens and with changes in subject distance from the lens.

Optical performance that goes beyond 4K even when using the built-in 2x extender and image stabiliser (function that counters lens-camera inadvertent movements and vibrations).
Thanks to the precision of its high-grade components and assembly, the lens achieves optical performance that goes beyond 4K even when the built-in 2x extender has been engaged. Also featured is an optical shift-type image stabilising mechanism of Canon’s highest grade, helping to achieve image stabilising performance commensurate with 4K.

Applicability and ease of operation ideally suited to 4K shooting
Since the lens achieves the zoom ratio, long focal length and size as well as the servo speed and stability required for the telecasting of live sports events and other applications, it ensures the applicability and ease of operation ideally suited to 4K shooting.

Compatibility with HD lens systems
The lens enables the use of the same Canon standard controllers for zoom and focus as well as servo modules currently used by HD equipment. It comes with a 20-pin connector compatible with virtual units and that enables high-accuracy position information of the zoom, focus and iris to be read out.

Control Accessories for Studio/Field Lenses
Please refer to page 24

Horizontal Field of View (16:9)	72.9°	66.7°	58.3°	56.1°	54.6°	3.4°	1.02°	0.69°	0.67°	0.59°
Focal Length (mm)	6.5	7.3	8.6	9	9.3	161	540	800	820	930
Studio Lens XJ22x7.3B		Compact Studio Lens								
Studio Lens XJ27x6.5B		Wide Angle Studio Lens								
Studio Lens XJ27x6.5B AF		Wide Angle Studio Lens with Advanced Auto Focus Function								
Field Lens XJ60x9B				Affordable Field Lens						
Field Lens XJ76x9B				Standard Field Lens with Superb Quality and Performance						
Field Lens XJ80x8.8B				Premium Field Lens with Superb Quality and Advanced Image Stabilizer						
Field Lens XJ86x9.3B AF					Telephoto Field Lens with Auto Focus and Image Stabilizer					
Field Lens XJ95x8.6B					Telephoto Field Lens with Advanced Image Stabilizer					
Field Lens XJ100x9.3B					Flagship Field Lens with Image Stabilizer					
Field Lens XJ100x9.3B AF					Flagship Field Lens with Auto Focus and Image Stabilizer					

Studio/Field Lenses

DIGISUPER Series
for HDTV / SDTV System

The DIGISUPER series lenses are controlled by Canon's ground breaking Digital Servo System.

See page 14

DIGISUPER 22 xs
for Portable Camera

The DIGISUPER 22 xs is a studio lens based on a new concept to be used with portable cameras.

See page 16

Studio/Field Lenses: **HDTV**

HD XS DIGI SUPER IMAGE STABILIZER

HD XS DIGI SUPER IMAGE STABILIZER

HD XS DIGI SUPER IMAGE STABILIZER

		DIGISUPER 100AF	DIGISUPER 100	DIGISUPER 95
Model Number		XJ100x9.3B AF	XJ100x9.3B	XJ95x8.6B
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 (2.0x)	9.3-930mm 18.6-1860mm (2.0x)	8.6-820mm 17.2-1640mm (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 1:9.4 at 1860mm (2.0x)	1:1.7 at 9.3-296mm 1:4.7 at 930mm 1:3.4 at 18.6-592mm 1:9.4 at 1860mm (2.0x)	1:1.7 at 8.6-340mm 1:4.1 at 820mm 1:3.4 at 17.2-680mm 1:8.2 at 1640mm (2.0x)
Angular Field of View (with Extender)	**4:3 Aspect Ratio (8.8 x 6.6mm)**	50.6° x 39.1° at 9.3mm 0.54° x 0.41° at 930mm 26.6° x 20.1° at 18.6mm 0.27° x 0.20° at 1860mm (2.0x)	50.6° x 39.1° at 9.3mm 0.54° x 0.41° at 930mm 26.6° x 20.1° at 18.6mm 0.27° x 0.20° at 1860mm (2.0x)	54.2° x 42.0° at 8.6mm 0.61° x 0.46° at 820mm 28.7° x 21.7° at 17.2mm 0.31° x 0.23° at 1640mm (2.0x)
	16:9 Aspect Ratio (9.6 x 5.4mm)	54.6° x 32.4° at 9.3mm 0.59° x 0.33° at 930mm 28.9° x 16.5° at 18.6mm 0.30° x 0.17° at 1860mm (2.0x)	54.6° x 32.4° at 9.3mm 0.59° x 0.33° at 930mm 28.9° x 16.5° at 18.6mm 0.30° x 0.17° at 1860mm (2.0x)	58.3° x 34.9° at 8.6mm 0.67° x 0.38° at 820mm 31.2° x 17.8° at 17.2mm 0.34° x 0.19° at 1640mm (2.0x)
M.O.D. from Lens Front		3.0m	3.0m	3.0m
Object Dimensions at M.O.D. (with Extender)	**4:3 Aspect Ratio (8.8 x 6.6mm)**	253.9 x 190.4cm at 9.3mm 2.54 x 1.90cm at 930mm 127.0 x 95.2cm at 18.6mm 1.27 x 0.95cm at 1860mm (2.0x)	253.9 x 190.4cm at 9.3mm 2.54 x 1.90cm at 930mm 127.0 x 95.2cm at 18.6mm 1.27 x 0.95cm at 1860mm (2.0x)	274.1 x 205.6cm at 8.6mm 3.0 x 2.3cm at 820mm 137.1 x 102.8cm at 17.2mm 1.5 x 1.2cm at 1640mm (2.0x)
	16:9 Aspect Ratio (9.6 x 5.4mm)	276.4x155.5cm at 9.3mm 2.76x1.56cm at 930mm 138.2 x 77.8cm at 18.6mm 1.38 x 0.78cm at 1860mm (2.0x)	276.4x155.5cm at 9.3mm 2.76x1.56cm at 930mm 138.2 x 77.8cm at 18.6mm 1.38 x 0.78cm at 1860mm (2.0x)	298.1x167.7cm at 8.6mm 3.2x1.8cm at 820mm 149.1 x 83.9cm at 17.2mm 1.6 x 0.9cm at 1640mm (2.0x)
Approx. Size (WxHxL)		250.6 x 255.5 x 661.5mm	250.6 x 255.5 x 610mm	250.6 x 255.5 x 610mm
Approx. Mass		26.8kg (59.3lbs)	23.5kg (51.8lbs)	23.2kg (51.1lbs)
Macro		--	--	--
Protection Filter		✓	✓	Optional
Built-in Optical Image Stabilizer		✓	✓	✓
Crossover Type		--	--	--
Auto Focus System		✓	--	--
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 (7.2 x 5.4mm)**			

HD XS DIGI SUPER IMAGE STABILIZER

HD XS DIGI SUPER IMAGE STABILIZER

HD XS DIGI SUPER

HD XS DIGI SUPER

DIGISUPER 86AF	DIGISUPER 80	DIGISUPER 76	DIGISUPER 60 xs
XJ86x9.3B AF	XJ80x8.8B	XJ76x9B	XJ60x9B IE-D
86x	80x	76x	60x
2.0x	2.0x	2.0x	2.0x
9.3-800mm 18.6-1600mm (2.0x)	8.8-710mm 17.6-1420mm (2.0x)	9-690mm 18-1380mm (2.0x)	9-540mm 18-1080mm (2.0x)
1:1.7 at 9.3-340mm 1:4.0 at 800mm 1:3.4 at 18.6-680mm 1:8.0 at 1600mm (2.0x)	1:1.7 at 8.8-340mm 1:3.55 at 710mm 1:3.4 at 17.6-680mm 1:7.1 at 1420mm (2.0x)	1:1.7 at 9-340mm 1:3.45 at 690mm 1:3.4 at 18-680mm 1:6.9 at 1380mm (2.0x)	1:1.7 at 9-306mm 1:3.0 at 540mm 1:3.4 at 18-612mm 1:6.0 at 1080mm (2.0x)
50.6° x 39.1° at 9.3mm 0.63° x 0.47° at 800mm 26.6° x 20.1° at 18.6mm 0.32° x 0.24° at 1600mm (2.0x)	53.1° x 41.1° at 8.8mm 0.71° x 0.53° at 710mm 28.1° x 21.2° at 17.6mm 0.36° x 0.27° at 1420mm (2.0x)	52.1° x 40.3° at 9mm 0.73° x 0.55° at 690mm 27.5° x 20.8° at 18mm 0.37° x 0.27° at 1380mm (2.0x)	52.1° x 40.3° at 9mm 0.93° x 0.70° at 540mm 27.5° x 20.8° at 18mm 0.47° x 0.35° at 1080mm (2.0x)
54.6° x 32.4° at 9.3mm 0.69° x 0.39° at 800mm 28.9° x 16.5° at 18.6mm 0.34° x 0.19° at 1600mm (2.0x)	57.2° x 34.1° at 8.8mm 0.77° x 0.44° at 710mm 30.5° x 17.4° at 17.6mm 0.39° x 0.22° at 1420mm (2.0x)	56.1° x 33.4° at 9mm 0.80° x 0.45° at 690mm 29.9° x 17.1° at 18mm 0.40° x 0.22° at 1380mm (2.0x)	56.1° x 33.4° at 9mm 1.02° x 0.57° at 540mm 29.9° x 17.1° at 18mm 0.51° x 0.29° at 1080mm (2.0x)
3.0m	3.0m	3.0m	2.8m
253.9 x 190.4cm at 9.3mm 2.8 x 2.1cm at 800mm 127.0 x 95.2cm at 18.6mm 3.2 x 1.8cm at 800mm (2.0x)	266.8 x 200.1cm at 8.8mm 3.4 x 2.6cm at 710mm 133.4 x 100.1cm at 17.6mm 1.7 x 1.3cm at 1420mm (2.0x)	259.9 x 194.9cm at 9mm 3.5 x 2.6cm at 690mm 130.0 x 97.5cm at 18mm 1.8 x 1.3cm at 1380mm (2.0x)	243.8 x 182.9cm at 9mm 4.1 x 3.1cm at 540mm 121.9 x 91.5cm at 18mm 2.1 x 1.6cm at 1080mm (2.0x)
276.4 x 155.5cm at 9.3mm 3.2 x 1.8cm at 800mm 138.2 x 77.8cm at 18.6mm 1.6 x 0.9cm at 1600mm (2.0x)	290.0 x 163.1cm at 8.8mm 3.7 x 2.1cm at 710mm 145.0 x 81.6cm at 17.6mm 1.9 x 1.1cm at 1420mm (2.0x)	282.4 x 158.9cm at 9mm 3.8 x 2.1cm at 690mm 141.2 x 79.5cm at 18mm 1.9 x 1.1cm at 1380mm (2.0x)	265.1 x 149.1cm at 9mm 4.5 x 2.5cm at 540mm 132.6 x 74.6cm at 18mm 2.3 x 1.3cm at 1080mm (2.0x)
250.6 x 255.5 x 661.5mm	250.6 x 255.5 x 610mm	250.6 x 255.5 x 610mm	250.6 x 255.5 x 547.8mm
26.8kg (59.3lbs)	23.2kg (51.1lbs)	23.0kg (50.6lbs)	19.9kg (43.8lbs)
--	--	--	--
✓	Optional	Optional	Optional
✓	✓	--	--
--	--	--	Optional
✓	--	--	--
Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras.			
			43.6° x 33.4° at 9mm 0.76° x 0.57° at 540mm 22.6° x 17.1° at 18mm 0.38° x 0.29° at 1080mm (2.0x)

✓ Standard — Not Applicable

- Please refer to page 10, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adopted to SDTV cameras.
- M.O.D. = Minimum Object Distance
- Black colour cover lenses are also available as an alternative to the white colour lenses.

Studio/Field Lenses: **HDTV**

HD xs DIGI SUPER

HD xs DIGI SUPER

Compact Studio Lens

HD xs DIGI SUPER

		DIGISUPER 27AF	DIGISUPER 27	DIGISUPER 22 xs
Model Number		XJ27x6.5B AF	XJ27x6.5B	XJ22x7.3B IE-D
Zoom Ratio		27x	27x	22x
Built-in Extender		2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		6.5-180mm 13-360mm (2.0x)	6.5-180mm 13-360mm (2.0x)	7.3-161mm 14.6-322mm (2.0x)
Maximum Relative Aperture (with Extender)		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	1:1.5 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 7.3-111.5mm 1:2.6 at 161mm 1:3.6 at 14.6-223mm (2.0x) 1:5.2 at 322mm
Angular Field of View (with Extender)	**4:3 Aspect Ratio (8.8 x 6.6mm)**	68.2° x 53.8° at 6.5mm 2.8° x 2.1° at 180mm 37.4° x 28.5° at 13mm (2.0x) 1.4° x 1.1° at 360mm	68.2° x 53.8° at 6.5mm 2.8° x 2.1° at 180mm 37.4° x 28.5° at 13mm (2.0x) 1.4° x 1.1° at 360mm	62.2° x 48.7° at 7.3mm 3.1° x 2.3° at 161mm 33.5° x 25.5° at 14.6mm (2.0x) 1.6° x 1.2° at 322mm
	16:9 Aspect Ratio (9.6 x 5.4mm)	72.9° x 45.1° at 6.5mm 3.1° x 1.7° at 180mm 40.5° x 23.5° at 13mm (2.0x) 1.5° x 0.9° at 360mm	72.9° x 45.1° at 6.5mm 3.1° x 1.7° at 180mm 40.5° x 23.5° at 13mm (2.0x) 1.5° x 0.9° at 360mm	66.7° x 40.6° at 7.3mm 3.4° x 1.9° at 161mm 36.4° x 21.0° at 14.6mm (2.0x) 1.7° x 1.0° at 322mm
M.O.D. from Lens Front		0.6m (10mm with Macro)	0.6m (10mm with Macro)	0.8m (10mm with Macro)
Object Dimensions at M.O.D. (with Extender)	**4:3 Aspect Ratio (8.8 x 6.6mm)**	97.0 x 72.8cm at 6.5mm 3.5 x 2.6cm at 180mm 48.5 x 36.4cm at 13mm (2.0x) 1.8 x 1.3cm at 360mm	97.0 x 72.8cm at 6.5mm 3.5 x 2.6cm at 180mm 48.5 x 36.4cm at 13mm (2.0x) 1.8 x 1.3cm at 360mm	107.8 x 80.9cm at 7.3mm 4.8 x 3.6cm at 161mm 53.9 x 40.5cm at 14.6mm (2.0x) 2.4 x 1.8cm at 322mm
	16:9 Aspect Ratio (9.6 x 5.4mm)	106.1 x 59.7cm at 6.5mm 3.8 x 2.1cm at 180mm 53.1 x 29.9cm at 13mm (2.0x) 1.9 x 1.1cm at 360mm	106.1 x 59.7cm at 6.5mm 3.8 x 2.1cm at 180mm 53.1 x 29.9cm at 13mm (2.0x) 1.9 x 1.1cm at 360mm	118.1 x 66.4cm at 7.3mm 5.2 x 2.9cm at 161mm 59.1 x 33.2cm at 14.6mm (2.0x) 2.6 x 1.5cm at 322mm
Approx. Size (WxHxL)		250.6 x 255.5 x 567mm	250.6 x 255.5 x 550mm	165 x 175 x 336mm
Approx. Mass		23.3kg (51.4lbs)	21.9kg (48.3lbs)	6.1kg (13.42lbs)
Macro		Optional (Remote)	Optional (Remote)	Standard (Manual)
Protection Filter		Optional	Optional	--
Built-in Optical Image Stabilizer		--	--	--
Crossover Type		--	Optional	Optional
Auto Focus System		✓	--	--
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 (7.2 x 5.4mm)**		58.0° x 45.1° at 6.5mm 2.3° x 1.7° at 180mm 31.0° x 23.5° at 13mm (2.0x) 1.1° x 0.9° at 360mm	52.5° x 40.6° at 7.3mm 2.6° x 1.9° at 161mm 27.7° x 21.0° at 14.6mm (2.0x) 1.3° x 1.0° at 322mm

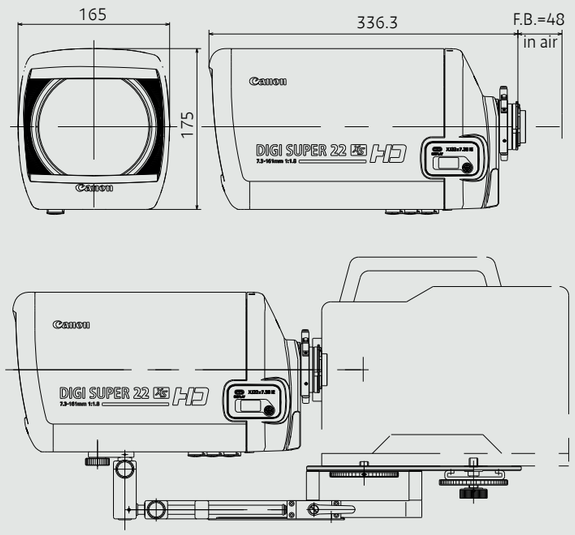
✓ Standard — Not Applicable

- Please refer to page 10, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adopted to SDTV cameras.
- M.O.D. = Minimum Object Distance
- Black colour cover lenses are also available as an alternative to the white colour lenses.

Compact Studio Lens: **DIGISUPER 22 xs**

The DIGISUPER 22 xs is a “Compact HD Studio lens” specifically designed to be used with a portable camera. Incorporating Canon’s pioneering technologies it offers superior optical performance and ease of operation, compared with both HD portable lenses and SD Studio Box Type Lenses.

Dimensions



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

High Optical Performance

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

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

Incorporating an “Encoder Device”, it has the capability to zoom from a very fast 0.5 sec. to a very slow 5 min. while improving the precision and repeatability of zoom, focus and iris control. The encoder device also enables the lens to be easily integrated into virtual studio applications.

Diverse Functions

The DIGISUPER 22 xs is equipped with an information display, which enables diverse digital functions to be used easily and precisely.

DIGISUPER Studio/Field Lenses: **Features**

The DIGISUPER series of Studio/Field lenses has been developed with the most advanced technologies, to meet the needs of modern production styles. The digital focus and zoom servo systems use a 32-bit CPU, as opposed to a conventional analog system, and offer a range of advanced functions. The CPU can also be easily upgraded for new features and unlimited possibilities in the future. The main features are as follows:

1. Unique Features of the latest DIGISUPER Series Lens and the ZDJ-D02, Digital Servo Zoom Demand

A) SHUTTLE SHOT AND FRAME PRESET

Two preset memories are available in any combination of **Shuttle Shot** and **Frame Preset.**

Shuttle Shot

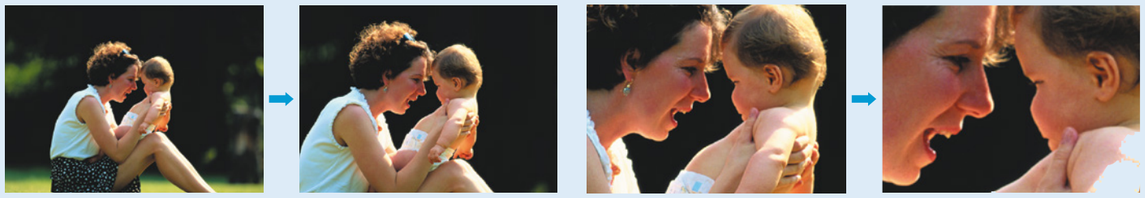
At the touch of a button, this feature allows the operator to zoom back and forth instantly between any two positions in either direction at maximum speed or at any desired speed memorised in the speed-preset function. It can be used for zooming to either the tele-side or wider focal length from any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

B) 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.



(Digital Servo System is available for DIGISUPER 100, DIGISUPER 100AF, DIGISUPER 95, DIGISUPER 86AF, DIGISUPER 80, DIGISUPER 76, DIGISUPER 60 xs, DIGISUPER 27AF, DIGISUPER 27, and DIGISUPER 23 xs.)

C) ZOOM TRACK

The zoom control range can be set at virtually any position used in a production. This function can also be used to memorise an additional preset zoom position.

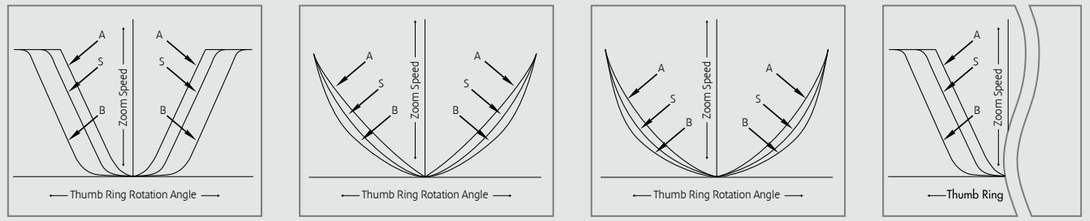
D) ZOOM SERVO CHARACTERISTICS SELECTION

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. (see fig.01)

E) “AUX” SWITCH FUNCTION ASSIGNMENT

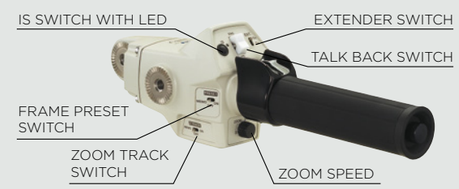
One of following functions can be assigned to the AUX switch on the ZDJ-D02.
1) Image Stabilizer: to activate/stop the built-in Shift-IS function. (Ref: Page 8)
2) F. Hold: to limit the zoom range to a consistent F-number and stop at the point of F-drop (Ramping).
3) Video Return Off: to disable the video return switch.

Figure 01



2. Unique Features of the ZDJ-P01 Digital Servo Zoom Demand for the latest DIGISUPER Series Zoom Lenses

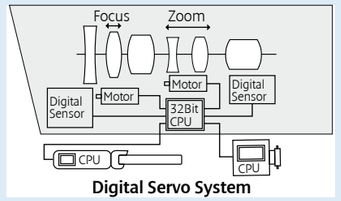
The ZDJ-D01 is a compact zoom demand, which is smaller than the ZDJ-P02 and designed for enhanced usability and easier operation. When used with the latest DIGISUPER series zoom lenses, it allows for creative use of the digital zoom functions, such as the Frame Preset Function and Zoom Track Function. It is also a more affordable option and allows for a cost effective control system.



3. CAFS

CONSTANT ANGLE FOCUSING SYSTEM

The zooming effect of focus is a phenomenon where the picture size (angle of view) changes when focusing. To counteract this, the 32-bit CPU calculates and controls the zoom when focusing ensuring the DIGISUPER series has ZERO zooming effect of focus.



4. Other Features

A) 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.

B) 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.

C) 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.

D) HIGH SPEED

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

E) AUTO FOCUS FUNCTION

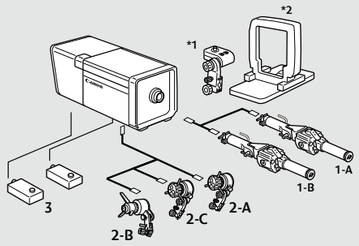
Canon’s unique auto focusing system has been adapted to the DIGISUPER 100AF, DIGISUPER 86AF and DIGISUPER 27AF. Please refer to page 6 for details.

Control Accessories for Studio/Field Lenses

DIGITAL DIGISUPER Series

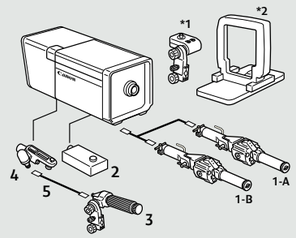
For :
DIGISUPER 100 / **DIGISUPER 95** / **DIGISUPER 80** / **DIGISUPER 76** / **DIGISUPER 60 xs** / **DIGISUPER 27** / **DIGISUPER 23 xs**

Full Servo System



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

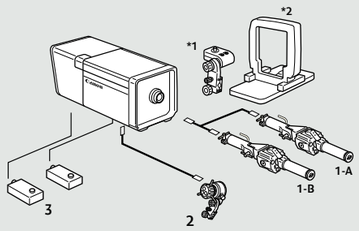
Semi-Servo System



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"	—

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

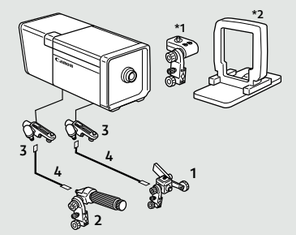
Full Servo System



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 DIGISUPER Lenses

Full Manual System

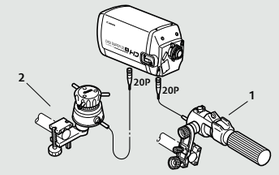


1.	Flexible Zoom Controller FZP-T61	1822A005
2.	Flexible Focus Controller FFP-T61	1822A007
3.	Flexible Module FMJ-702 (´2pcs)	1822A072
4.	Flexible Cable 36" (´2pcs)	—

*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.

For :
DIGISUPER 22 xs

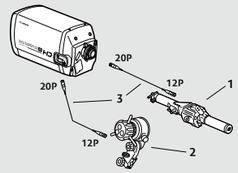
With Current ENG Demand



Kit Detail

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

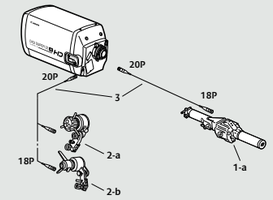
With Compact Field/Studio



Kit Detail

No.	DESCRIPTION	
1	Digital Zoom Demand	ZDJ-P01
2	Digital Focus Demand	FDJ-P01
3	Conversion Cable	BDC-20

With Current Field/Studio



Kit Detail

No.	DESCRIPTION	
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-10

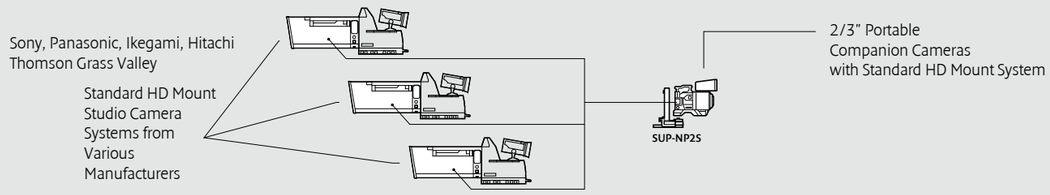
The DIGISUPER 22 xs can be used with our current Studio/Field lens controllers as well as those for our ENG lenses.
At the same time, the lens also offers compatibility with our Compact Field/Studio demands by use of a conversion cable.
* The SUP-400 SUPPORTER is included as a standard component with the lens.

Studio/Field Lenses Mount Compatibility

To Use Camera Manufacturer's Original Mount Lens

Studio/Field lenses are made with unique 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)



Broadcast ENG/EFP Lenses

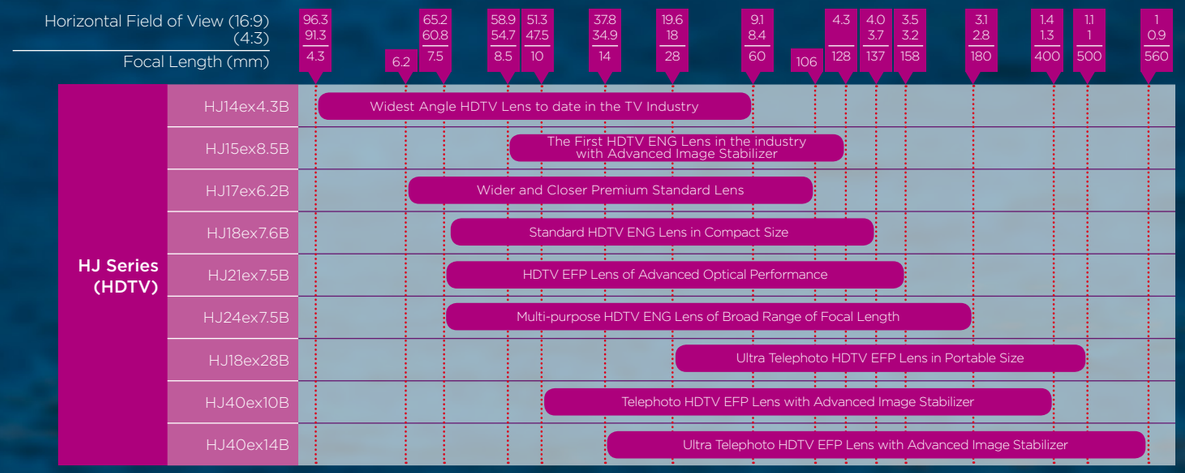
ENG/EFP lens
for HDTV / SDTV System

Canon offers a variety of Broadcast ENG/EFP lenses, including both HDTV and SDTV versions. Please refer to page 10 regarding the difference between HDTV and SDTV lenses.

See page 24

Please note that the HDTV lenses perform excellently when they are used on SDTV cameras. Please refer to page 7, 9 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 page 34 & 35.

The DIGISUPER 22 xs is a box type lens developed to be used with a portable camera. The lens provides higher optical performance compared with the HD portable lenses and higher versatility as opposed to the large box type lenses. Please refer to page 17 for the details.



2/3” ENG/EFP Lenses: **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 1:10.2 at 1120mm (2.0x)	1:2.0 at 10-220mm 1:3.65 at 400mm 1:4.0 at 20-440mm 1:7.3 at 800mm (2.0x)	1:2.8 at 28-286mm 1:4.9 at 500mm 1:5.6 at 56-572mm 1:9.8 at 1000mm (2.0x)
Angular Field of View (with Extender)	**4:3 Aspect Ratio (8.8 x 6.6mm)**	34.9° x 26.5° at 14mm 0.9° x 0.7° at 560mm 17.9° x 13.4° at 28mm 0.5° x 0.3° at 1120mm (2.0x)	47.5° x 36.5° at 10mm 1.3° x 0.9° at 400mm 24.8° x 18.7° at 20mm 0.6° x 0.5° at 800mm (2.0x)	18.0° x 13.5° at 28mm 1.0° x 0.8° at 500mm 9.0° x 6.8° at 56mm 0.5° x 0.4° at 1000mm (2.0x)
	16:9 Aspect Ratio (9.6 x 5.4mm)	37.8° x 21.8° at 14mm 1.0° x 0.6° at 560mm 19.4° x 11.0° at 28mm 0.5° x 0.3° at 1120mm (2.0x)	51.3° x 30.2° at 10mm 1.4° x 0.8° at 400mm 27.0° x 15.4° at 20mm 0.7° x 0.4° at 800mm (2.0x)	19.6° x 11.1° at 28mm 1.1° x 0.6° at 500mm 9.9° x 5.6° at 56mm 0.6° x 0.3° 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 (8.8 x 6.6mm)**	162.3 x 121.7cm at 14mm 4.1 x 3.1cm at 560mm 81.2 x 60.9cm at 28mm 2.1 x 1.6cm at 1120mm (2.0x)	227.7 x 170.8cm at 10mm 5.7 x 4.3cm at 400mm 113.9 x 85.4cm at 20mm 2.9 x 2.2cm at 800mm (2.0x)	65.4 x 49.1cm at 28mm 3.8 x 2.9cm at 500mm 32.7 x 24.6cm at 56mm 1.9 x 1.5cm at 1000mm (2.0x)
	16:9 Aspect Ratio (9.6 x 5.4mm)	177.1 x 99.5cm at 14mm 4.5 x 2.5cm at 560mm 88.6 x 49.8cm at 28mm 2.3 x 1.3cm at 1120mm (2.0x)	248.4 x 139.7cm at 10mm 6.2 x 3.5cm at 400mm 124.2 x 69.9cm at 20mm 3.1 x 1.8cm at 800mm (2.0x)	71.1 x 40.0cm at 28mm 4.1 x 2.3cm at 500mm 35.6 x 20.0cm at 56mm 2.1 x 1.2cm at 1000mm (2.0x)
Approx. Size (WxHxL)		174.1 x 133 x 355.5mm	174.1 x 133 x 335.4mm	176.2 x 120.8 x 268.3mm
Approx. Mass (IRSE/IASE)		5.45kg (12.02lbs)	5.40kg (11.90lbs)	2.56kg (5.65lbs)
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 (7.2 x 5.4mm)	28.8° x 21.8° at 14mm 0.7° x 0.6°at 560mm 14.7° x 11.0° at 28mm 0.4° x 0.3° at 1120mm (2.0x)	39.6° x 30.2° at 10mm 1.0° x 0.8°at 400mm 20.4° x 15.4° at 20mm 0.5° x 0.4° at 800mm (2.0x)	14.7° x 11.1° at 28mm 0.8° x 0.6°at 500mm 7.4° x 5.6° at 56mm 0.4° x 0.3° at 1000mm (2.0x)

		HJ24ex7.5B IRSE S/IASE S	HJ21ex7.5B IASE S	HJ18ex7.6B IRSE S/IASE S	HJ17ex6.2B IRSE S/IASE S
Zoom Ratio		24x	21x	18x	17x
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)		7.5-180mm 15.0-360mm (2.0x)	7.5-158mm 15-316mm (2.0x)	7.6-137mm 15.2-274mm (2.0x)	6.2-106mm 12.4-212mm (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 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 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 1:4.8 at 274mm (2.0x)	1:1.8 at 6.2-65.8mm 1:2.9 at 106mm 1:3.6 at 12.4-131.6mm 1:5.8 at 212mm (2.0x)
Angular Field of View (with Extender)	**4:3 Aspect Ratio (8.8 x 6.6mm)**	60.8° x 47.5° at 7.5mm 2.8° x 2.1° at 180mm 32.7° x 24.8° at 7.5mm 1.4° x 1.1° at 180mm (2.0x)	60.8° x 47.5° at 7.5mm 3.2° x 2.4° at 158mm 32.7° x 24.8° at 15mm 1.6° x 1.2° at 316mm (2.0x)	60.1° x 46.9° at 7.6mm 3.7° x 2.8° at 137mm 35.1° x 20.1° at 15.2mm 1.8° x 1.4° at 274mm (2.0x)	70.7° x 56.0° at 6.2mm 4.8° x 3.6° at 106mm 39.1° x 29.8° at 12.4mm 2.4° x 1.8° at 212mm (2.0x)
	16:9 Aspect Ratio (9.6 x 5.4mm)	65.2° x 39.6° at 7.5mm 3.1° x 1.7° at 180mm 35.5° x 20.4° at 7.5mm 1.5° x 0.9° at 180mm (2.0x)	65.2° x 39.6° at 7.5mm 3.5° x 2.0° at 158mm 35.5° x 20.4° at 15mm 1.7° x 1.0° at 316mm (2.0x)	64.6° x 39.1° at 7.6mm 4.0° x 2.3° at 137mm 35.1° x 20.1° at 15.2mm 2.0° x 1.1° at 274mm (2.0x)	75.5° x 47.1° at 6.2mm 5.2° x 2.9° at 106mm 42.3° x 24.6° at 12.4mm 2.6° x 1.5° at 212mm (2.0x)
M.O.D. from Lens Front		0.85mm (10mm with macro)	0.85m (10mm with Macro)	0.56m (10mm with Macro)	0.4m (10mm with Macro)
M.O.D. from Image Plane			1.16m	0.81m	0.69m
Object Dimensions at M.O.D. (with Extender)	**4:3 Aspect Ratio (8.8 x 6.6mm)**	88.3 × 66.2cm at 7.5mm 3.8 × 2.9cm at 180mm 44.2 × 33.1cm at 15.0mm 1.9 × 1.4cm at 360mm (2.0x)	110.1 x 82.6cm at 7.5mm 5.1 x 3.8cm at 158mm 55.1 x 41.3cm at 15mm 2.6 x 1.9cm at 316mm (2.0x)	55.9 x 44.9cm at 7.6mm 3.3 x 2.5cm at 137mm 30.0 x 22.5cm at 15.2mm 1.7 x 1.3cm at 274mm (2.0x)	66.9 x 50.2cm at 6.2mm 3.8 x 2.9cm at 106mm 33.5 x 25.1cm at 12.4mm 1.9 x 1.5cm at 212mm (2.0x)
	16:9 Aspect Ratio (9.6 x 5.4mm)	96.0 × 54.0cm at 7.5mm 4.1 × 2.3cm at 180mm 48.0 × 27.0cm at 15.0mm 2.1 × 1.2cm at 360mm (2.0x)	120.4 x 67.7cm at 7.5mm 5.6 x 3.2cm at 158mm 60.2 x 33.9cm at 15mm 2.8 x 1.6cm at 316mm (2.0x)	65.5 x 36.8cm at 7.6mm 3.8 x 2.1cm at 137mm 32.8 x 18.4cm at 15.2mm 1.9 x 1.1cm at 274mm (2.0x)	73.3 x 41.2cm at 6.2mm 4.1 x 2.3cm at 106m 36.7 x 20.6cm at 12.4mm 2.1 x 1.2cm at 212mm (2.0x)
Approx. Size (WxHxL)		164.6 × 109.1 × 221.4mm	175.2 x 119.8 x 260.1mm	160.5 x 105 x 206.2mm	165.0 x 109.5 x 240.5mm
Approx. Mass (IRSE/IASE)		1.78kg (3.92lbs) / 1.86kg (4.10lbs)	— /2.69kg (5.94lbs)	1.58kg (3.48lbs)/1.66kg (3.65lbs)	1.97kg (4.34lbs)/2.05kg (4.52lbs)
Filter Thread Size (Hood/Lens Barrel)		105mm P1/94mm P1	127mm P0.75/ —	— /82mm P0.75	105mm P1/ —
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 (7.2 x 5.4mm)		51.3° x 39.6° at 7.5mm 2.6° x 2.0° at 158mm 27.0° x 20.4° at 15mm 1.3° x 1.0° at 316mm (2.0x)	50.7° x 39.1° at 7.6mm 3.0° x 2.3° at 137mm 26.6° x 20.1° at 15.2mm 1.5° x 1.1° at 274mm (2.0x)	60.3° x 47.1° at 6.2mm 3.9° x 2.9° at 106mm 32.4° x 24.6° at 12.4mm 1.9° x 1.5° at 212mm (2.0x)

✓ Standard — Not Applicable

- Please refer to page 10, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adopted to SDTV cameras.
- M.O.D. = Minimum Object Distance
- Black colour cover lenses are also available as an alternative to the white colour lenses.

2/3” ENG/EFP Lenses: **HDTV**

HDXS

HDXS IMAGE STABILIZER

		HJ14ex4.3B IRSE S/IASE S	HJ15ex8.5B KRSE-V
Zoom Ratio		14x	15x
Image Size		2/3"	2/3"
Built-in Extender		2.0x	—
Range of Focal Length (with Extender)		4.3-60mm 8.6-120mm (2.0x)	8.5-128mm
Maximum Relative Aperture (with Extender)		1:1.8 at 4.3-40mm 1:2.7 at 60mm 1:3.6 at 8.6-80mm 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 (8.8 x 6.6mm)**	91.3° x 75.0° at 4.3mm 8.4° x 6.3° at 60mm 54.2° x 42.0° at 8.6mm 4.2° x 3.2° at 120mm (2.0x)	54.7° x 42.4° at 8.5mm 3.9° x 3.0° at 128mm
	16:9 Aspect Ratio (9.6 x 5.4mm)	96.3° x 64.2° at 4.3mm 9.1° x 5.2° at 60mm 58.3° x 34.9° at 8.6mm 4.6° x 2.6° at 120mm (2.0x)	58.9° x 35.2° at 8.5mm 4.3° x 2.4° at 128mm
M.O.D. from Lens Front		0.3m (10mm with Macro)	0.8m (10mm with Macro)
M.O.D. from Image Plane		0.59m	—
Object Dimensions at M.O.D. (with Extender)	**4:3 Aspect Ratio (8.8 x 6.6mm)**	69.9 x 52.4cm at 4.3mm 4.8 x 3.6cm at 60mm 35.0 x 26.2cm at 8.6mm 2.4 x 1.8cm at 120mm (2.0x)	87.4 x 65.6cm at 8.5mm 5.8 x 4.4cm at 128mm
	16:9 Aspect Ratio (9.6 x 5.4mm)	76.4 x 43cm at 4.3mm 5.2 x 2.9cm at 60mm 38.2 x 21.5cm at 8.6mm 2.6 x 1.5cm at 120mm (2.0x)	95.8 x 53.9cm at 8.5mm 6.4 x 3.6cm at 128m
Approx. Size (WxHxL)		163.5 x 108.0 x 247.8mm	170.2 x 116.2 x 239.1mm
Approx. Mass (IRSE/IASE)		1.99kg (4.39lbs)/2.07kg (4.56lbs)	1.99kg (4.37lbs)
Filter Thread Size (Hood/Lens Barrel)		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 (7.2 x 5.4mm)	79.9° x 64.2° at 4.3mm 6.9° x 5.2° at 60mm 45.4° x 34.9° at 8.6mm 3.4° x 2.6° at 120mm (2.0x)	

✓ Standard — Not Applicable

- Please refer to page 10, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adopted to SDTV cameras.
- M.O.D. = Minimum Object Distance
- Black colour cover lenses are also available as an alternative to the white colour lenses.

World’s First HDTV Portable Lens with Built-in Image Stabilizer

The HJ15ex8.5B KRSE-V is the world’s first portable HD lens with built-in Optical Image Stabilization. Compact and lightweight the lens offers a high zoom ratio and wide angle of view and incorporates Canon’s patented VAP-IS technology to ensure stable HD imagery in shooting environments that cause vibration and physical disturbances to the lens-camera system.

The Vari-angle Prism Image Stabilizer technology overcomes a wide range of disturbance frequencies throughout the entire zoom range, while maintaining a high optical performance, to ensure a high level of HD Image Stabilization. (See page 9 for the specification)

HDXS IMAGE STABILIZER

HJ15ex8.5B KRSE-V

Main Features

- Full HDTV Optical Performance
- 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 Stabilising 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 mounted or handheld
	Tripod mode	Effectively compensates for disturbances caused by unsteady platform or wind
Select According to the Direction of Disturbance	**H+V mode**	Optimises stabilisation when disturbance frequencies are both horizontal and vertical
	V mode	Effectively counters vertical disturbances while panning the lens-camera

Digital Drive ENG/EFP Lenses: **Features**

HDgc (IRSE / IASE model) lenses incorporate an enhanced “Digital Drive” that delivers a wide range of features for improved ease of operation.

1. Three Preset Functions

Canon’s Digital Drive provides the following “three preset functions”:

Shuttle Shot

By memorising any two focal lengths, the Digital Drive can automatically “shuttle” between the two points, moving in either direction.

Frame Preset

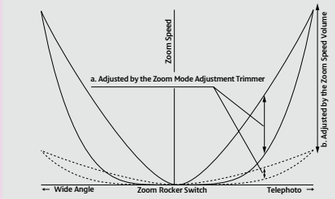
An angle of view can be preset in either of two memories (DD: one memory) and the lens will zoom to that position by simply pushing a button. During a performance, frame preset will reproduce the zoom position decided upon in rehearsal as often as you like either at maximum speed or a preset zoom speed.

Speed Preset

A specific zoom speed can be preset in memory and repeated as often as you like by simply pushing a button.

2. 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.

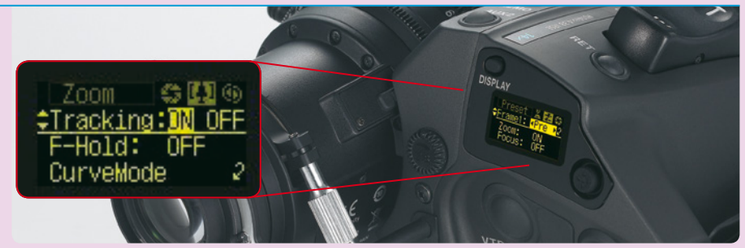


3. User-Customised Setting

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

4. Zoom Track

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



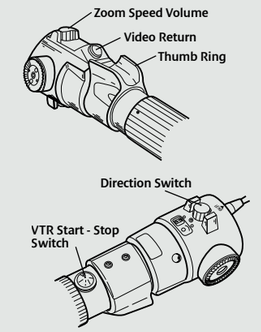
5. Improved Maximum Zoom and Focus Servo Speed

Zoom: 0.5 sec., Focus: 1.5 sec.

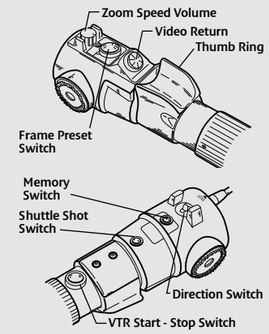
6. Demand Series to Support Digital Function

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) are designed to support the Digital Driver’s unique functions. They are quickly and easily connected to the “Digital Drive” via a 20-pin one-touch type connector. With the FPD-400D, focus servo operational curve can also be selected, unlike a conventional focus demand. Except for the unique digital functions, the digital series of demands is fully compatible with conventional demands although a conversion cable may be required. (Please refer to Page 37.)

ZSD-300A/M (for Analog Drive Lens)



ZSD-300D (for Digital Drive Lens)



7. Compatibility with Virtual Studio System

Canon has a series of HDxs/e-IFxs/HDgc (IRSE / IASE model) lenses, which are equipped with an enhanced digital drive unit. 16-bit resolution Rotary Encoder Devices are built into the enhanced digital drive unit, so 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 is also much more precise. Canon’s unique technology allows the surprisingly small Encoder Device to be installed in the existing drive unit without changes in size or weight.

Lens with the Optional Encoder Unit

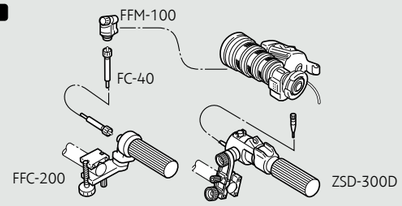
Lens with Encoder Device included in the Drive Unit

Control Accessories of Digital Drive ENG/EFP Lenses

J35ex11B/J35ex15B/KJ22ex7.6B/KJ17ex7.7B/KJ10ex4.5B/KH21ex5.7/KH16ex5.7/KH10ex3.6/KT17ex4.3B/HJ14ex4.3B/
HJ15ex8.5B KRSE-V/HJ17ex6.2B/HJ17ex7.6B/HJ18ex28B/HJ21ex7.5B/HJ22ex7.6B/HJ40x10B/HJ40x14B

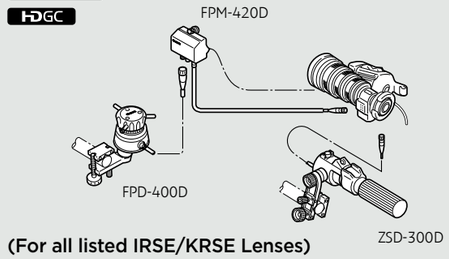
Recommended Kit Configuration

MS-210D SEMI-SERVO KIT



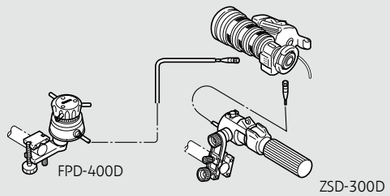
(For all listed IRSE/KRSE Lenses)

SS-41-D FULL SERVO KIT



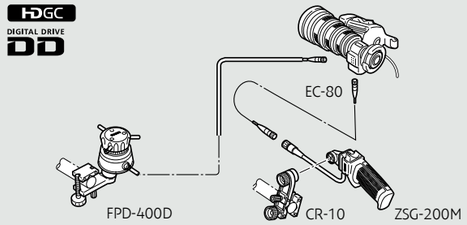
(For all listed IRSE/KRSE Lenses)

SS-41-IASD FULL SERVO KIT



(For all listed IASD/IASE Lenses)

SS-42-IAS FULL SERVO KIT

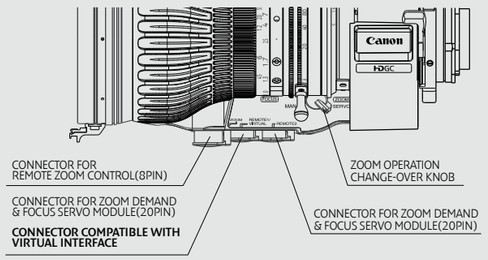


(For all listed IASD/IASE Lenses)

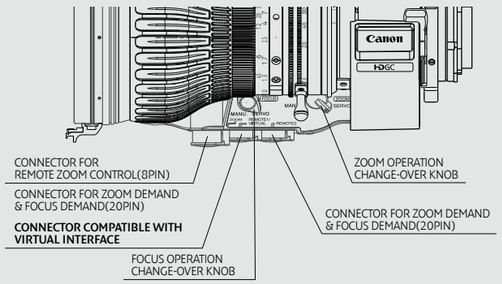
The Difference Between IRSE and IASE (IASD) Type Lenses

The IRSE lenses are the standard type of Portable lens with a Servo Zoom Digital Drive Unit. For Servo Focus operation, IRSE lenses require both a Servo Focus Module and a Servo Focus Demand. The IASE (IASD) 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 (IASD) lenses only require a Servo Focus Demand. The IASE (IASD) lenses can be used in both the Studio and the Field.

IRSE TYPE

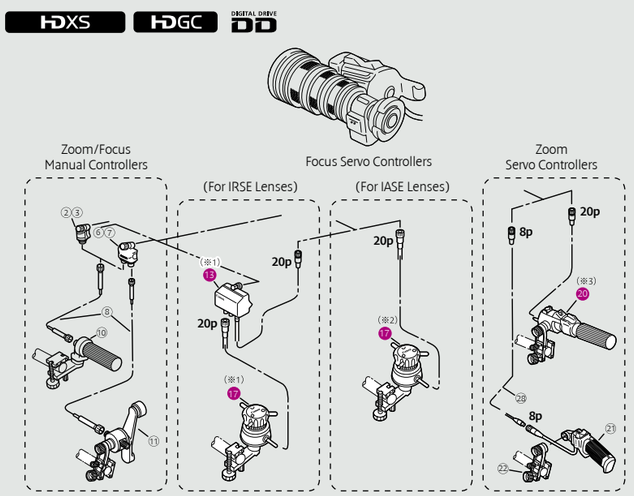


IASE (IASD) TYPE



• The telephoto lenses (HJ40x, J35ex) are not compatible with virtual interfaces.

Applicable Component Detail



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

(※1) Analog FPD-400 and FPM-420 are also applicable, however, CC-2012 conversion cable is necessary to connect between IRSE Digital Drive Lens and FPM-420.
(※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.

Applicable Kit Detail

For : IRSE Type Lenses

	Kit Name	Zoom System	Zoom Component	Focus System	Focus 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 System	Zoom Component	Focus System	Focus 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 System	Zoom Component	Focus System	Focus Component
Zoom Servo Only	–	ZR-1D	20	–	–
	–	ZR-2(A)	21 22 28	–	–
Semi-Servo	–	ZR-1D	20	FR-2	3 8 10
	–	ZR-2(A)	21 22 28	FR-2	3 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	7 8 11	FR-2(w/o 3)	8 10

■ Recommended kit configuration for the listed lenses. (See previous page)

● The controllers support the new DD functions.

HDgc Series ENG Lenses

HDgc Series ENG Lenses

The HDgc lens series is designed for the new generation of cost-effective HD acquisition systems and comprises a variety of HDTV ENG Lenses for 2/3”, 1/2” and 1/3” image size cameras

See page 34

Horizontal Field of View (16:9)		93.7	77.3	75.7	64.6	63.9	60.7	57.1	55.2	12.2	7	6.8	4.2	3.4	3.3	3.1	3
Focal Length (mm) (2/3)		4.5	6		7.6	7.7	8.2	6.4		45	78		131	164	168	128	
(1/2)				4.5					5			59			120		100
(1/3)																	
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” Multi-purpose HDTV ENG 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”	KT20x5B								1/3” Multi-purpose HDTV ENG Lens without Extender								

HDgc Series Lenses: **HDTV**

HDGC 2/3"

HDGC 2/3"

HDGC 2/3"

		KJ22ex7.6B IRSE S/IASE S	KJ17ex7.7B IRSE S/IASE S	KJ10ex4.5B IRSE S/IASE S
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 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 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 1:4.7 at 90mm (2.0x)
Angular Field of View (with Extender)	**4:3 Aspect Ratio (8.8 x 6.6mm)**	60.1° x 46.9° at 7.6mm 3.0° x 2.3° at 168mm 32.3° x 24.5° at 15.2mm 1.5° x 1.1° at 336mm (2.0x)	59.5° x 46.4° at 7.7mm 3.85° x 2.89° at 131mm 31.9° x 24.2° at 15.4mm 1.92° x 1.44° at 262mm (2.0x)	88.7° x 72.5° at 4.5mm 11.2° x 8.4° at 45mm 52.1° x 40.3° at 9mm 5.6° x 4.2° at 90mm (2.0x)
	16:9 Aspect Ratio (9.6 x 5.4mm)	64.6° x 39.1° at 7.6mm 3.3° x 1.8° at 168mm 35.1° x 20.1° at 15.2mm 1.6° x 0.9° at 336mm (2.0x)	63.9° x 38.6° at 7.7mm 4.2° x 2.36° at 131mm 34.6° x 19.9° at 15.4mm 2.1° x 1.18° at 262mm (2.0x)	93.7° x 61.9° at 4.5mm 12.2° x 6.9° at 45mm 56.1° x 33.4° at 9mm 6.1° x 3.4° 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 (8.8 x 6.6mm)**	87.4 x 65.6cm at 7.6mm 4.0 x 3.0cm at 168mm 43.7 x 32.8cm at 15.2mm 2.0 x 1.5cm at 336mm (2.0x)	63.1 x 47.3cm at 7.7mm 3.8 x 2.9cm at 131mm 31.6 x 23.7cm at 15.4mm 1.9 x 1.5cm at 262mm (2.0x)	67.9 x 50.9cm at 4.5mm 5.9 x 4.4cm at 45mm 34.0 x 25.5cm at 9mm 3.0 x 2.2cm at 90mm (2.0x)
	16:9 Aspect Ratio (9.6 x 5.4mm)	95.0 x 53.4cm at 7.6mm 4.4 x 2.5cm at 168mm 47.5 x 26.7cm at 15.2mm 2.2 x 1.3cm at 336mm (2.0x)	68.5 x 38.5cm at 7.7mm 4.2 x 2.4cm at 131mm 34.3 x 19.3cm at 15.4mm 2.1 x 1.2cm at 262mm (2.0x)	74.1 x 41.7cm at 4.5mm 6.4 x 3.6cm at 45mm 37.0 x 20.8cm at 9mm 3.2 x 1.8cm at 90mm (2.0x)
Approx. Size (WxHxL)		164.7 x 112.1 x 218.6mm	159.3 x 106.6 x 197.8mm	168.2 x 110.6 x 237.7mm
Approx. Mass (IRSE/IASE)		1.82kg (4.0lbs)/1.90kg (4.19lbs)	1.48kg (3.26lbs)/1.56kg (3.44lbs)	1.83kg (4.04lbs)/1.91kg (4.22lbs)
Information Display		✓	✓	✓
Filter Thread Size (Hood/Lens Barrel)		105mm P1/94mm P1	— /82mm P0.75	127mm P0.75/ —

HDGC 2/3"

HDGC 2/3"

HDGC 2/3"

KJ20x8.2B IRSD	KJ20x8.2B KRSD	KJ13x6B KRSD
20x	20x	13x
2/3"	2/3"	2/3"
2.0x	—	—
8.2-164mm 16.4-328mm (2.0x)	8.2-164mm	6-78mm
1:1.9 at 8.2-115.4mm 1:2.7 at 164mm 1:3.8 at 16.4-230.8mm 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
56.4° x 43.8° at 8.2mm 3.1° x 2.3° at 164mm 30.0° x 22.8° at 16.4mm 1.5° x 1.2° at 328mm (2.0x)	56.4° x 43.8° at 8.2mm 3.1° x 2.3° at 164mm	72.5° x 57.6° at 6mm 6.5° x 4.8°at 78mm
60.7° x 36.5° at 8.2mm 3.4° x 1.9° at 164mm 32.6° x 18.7° at 16.4mm 1.7° x 0.9° at 328mm (2.0x)	60.7° x 36.5° at 8.2mm 3.4° x 1.9° at 164mm	77.3° x 48.5° at 6mm 7.0° x 4.0° at 78mm
0.9m (10mm with Macro)	0.9m (10mm with Macro)	0.4m (10mm with Macro)
90.1 x 67.6cm at 8.2mm 4.6 x 3.5cm at 164mm 45.1 x 33.8cm at 16.4mm 2.3 x 1.8cm at 328mm (2.0x)	90.1 x 67.6cm at 8.2mm 4.6 x 3.5cm at 164mm	67.8 x 50.9cm at 6mm 5.0 x 3.8cm at 78mm
98.2 x 55.2cm at 8.2mm 5.0 x 2.8cm at 164mm 49.1 x 27.6cm at 16.4mm 2.5 x 1.4cm at 328mm (2.0x)	98.2 x 55.2cm at 8.2mm 5.0 x 2.8cm at 164mm	74.3 x 41.8cm at 6mm 5.4 x 3.0cm at 78mm
163.3 x 103.0 x 208.0mm	163.3 x 103.0 x 181.8mm	165.4 x 105.1 x 211.7mm
1.42kg (3.13lbs)/ —	1.25kg (2.76lbs)	1.59kg (3.51lbs)
—	—	—
— /82mm P0.75	— /82mm P0.75	105mm P1/ —

✓ Standard — Not Applicable

- For control accessories, please refer to page 36 and 37.
- Please refer to page 36 for explanation about IRSE models.
- For KT17ex Digital Drive Unit come equipped with Zoom, Iris and Focus Encoders.
  For KH21ex/KH16ex/KH10ex Digital Drive Units come equipped with Zoom and Iris Encoders only. A Focus Encoder is available as an option in these units.
- The above specification for each lenses are based on the following image size formats. 1/2":Ø8mm, 1/3":Ø6mm.

HDgc Series Lenses: **HDTV**

HDGC **1/2"**

HDGC **1/3"**

		KH13x4.5 KRSD SY14	KT20x5B KRSD A
Zoom Ratio		13x	20x
Image Size		1/2"	1/3"
Built-in Extender		—	—
Range of Focal Length (with Extender)		4.5-59mm	5-100mm
Maximum Relative Aperture (with Extender)		1:1.5 at 4.5-44mm 1:2.0 at 59mm	1:1.4 at 5.0-90.3mm 1:1.55 at 100mm
Angular Field of View (with Extender)	**4:3 Aspect Ratio (8.8 x 6.6mm)**	70.8° x 56.1° at 4.5mm 6.2° x 4.7° at 59mm	51.3° x 39.6° at 5mm 2.8° x 2.1° at 100mm
	16:9 Aspect Ratio (9.6 x 5.4mm)	75.7° x 46.9° at 4.5mm 6.8° x 3.8° at 59mm	55.2° x 32.8° at 5mm 3.0° x 1.7° at 100mm
M.O.D. from Lens Front		0.4m (10mm with Macro)	0.9m (10mm with Macro)
Object Dimensions at M.O.D. (with Extender)	**4:3 Aspect Ratio (8.8 x 6.6mm)**	66.7 x 50.0cm at 4.5mm 4.9 x 3.7cm at 59mm	80.9 x 60.7cm at 5mm 4.2 x 3.2cm at 100mm
	16:9 Aspect Ratio (9.6 x 5.4mm)	73.4 x 41.3cm at 4.5mm 5.4 x 3.0cm at 59mm	88.1 x 49.6cm at 5.0mm 4.5 x 2.5cm at 100mm
Approx. Size (WxHxL)		165.4 x 105.1 x 215.3mm	163.3 x 103 x 171.2mm
Approx. Mass (IRSE/IASE)		1.59kg (3.51lbs)	1.19kg (2.62lbs)
Information Display		—	—
Filter Thread Size (Hood/Lens Barrel)		105mm P1/ —	— /82mm P0.75

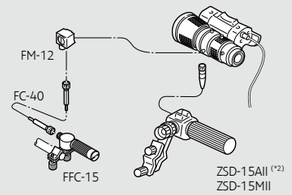
✓ Standard — Not Applicable

- For control accessories, please refer to page 36-37.
- M.O.D. = Minimum Object Distance.
- The above specification for each lenses are based on the following image size formats. 2/3":Ø11mm.

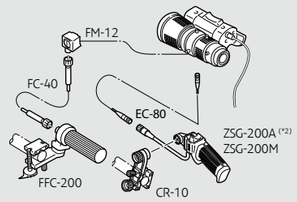
Control Accessories for Pro-video ENG Lenses and HDgc[*1] Lenses

Recommended Kit Configuration **(For all Pro-video ENG Lenses)**

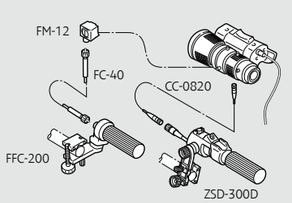
MS-15 SEMI-SERVO KIT



MS-22 SEMI-SERVO KIT

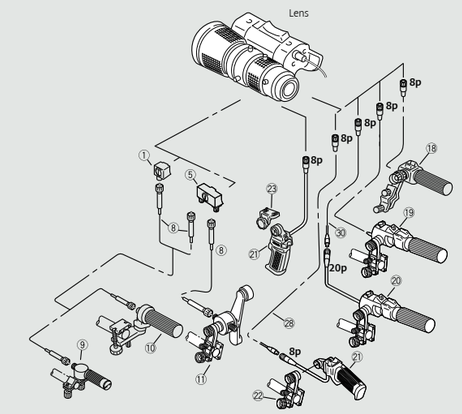


MS-21D SEMI-SERVO KIT



(*1) HDgc Lenses of page 32 and 33.
(*2) A or M types, depends on applicable camera.

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 Focus Controller		1824A021
⑱	ZSD-15A II /M II (A or M types, depends on applicable camera)	Zoom Demand (*3)	A M	1824A070 1824A071
⑲	ZSD-300A/M (A or M types, depends on applicable camera)	Zoom Demand (*3)	A M	1824A066 1824A067
⑳	ZSD-300D	Zoom Demand		1824A123
㉑	ZSG-200A/M (A or M types, depends on applicable camera)	Zoom Servo Grip (*3)	A M	1824A068 1824A069
㉒	CR-10	Clamper		1824A007
㉓	GA-70	Grip Adapter		0018T531
㉘	EC-80	Zoom Extension Cable (8P)		1824A009
㉚	CC-0820	Conv. Cable (8pM-20pF)		1824A127

(*3) ZSD-15A, ZSD-300A/M and ZSG-200A are not available from Canon stock.

Applicable Kit Detail

		Zoom		Focus	
	Kit Name	System	Component	System	Component
Zoom Servo Only	–	ZSD-15	⑱**	–	–
	–	ZR-1	⑲	–	–
	–	ZR-2(A)	㉑ ㉒ ㉘	–	–
	–	ZR-2(B)	㉑ ㉓*	–	–
Semi-Servo	MS-15	ZSD-15	⑱**	FRC-15	① ⑧ ⑨**
	MS-21	ZR-1	⑲	FR-2	① ⑧ ⑩
	MS-21D	ZR-1D	⑳ ㉚	FR-2	① ⑧ ⑩
	MS-22	ZR-2(A)	㉑ ㉒ ㉘	FR-2	① ⑧ ⑩
Full Manual	FZC-1	FZC-1	⑤ ⑧ ⑪	FR-2(w/o ①)	⑧ ⑩

* ⑤ & ㉓ are not applicable to YH14x7.3 and YH16x7.
** In USA, ⑱ & ⑨ are available only as MS-15 kit configuration and not as individual product.

Recommended kit configuration for the listed lenses. (See previous page)

EF Cinema Lenses

EF Cinema Lenses

Canon offers a full line up of zoom and prime lenses which are designed and engineered to meet or exceed the exacting standards of cinematographers, supporting 4K resolution and beyond. Zoom lenses are available in both PL or EF mount and are compatible with Super 35mm sensors, while prime lenses are available in EF mount only and are suitable for use with both Super 35mm and Full Frame sensors such as those found in Canon's range of EOS digital SLR cameras.

Refer to the following pages for more details.

See page 46

Digital Cinema Lenses

Canon's range of Cinema lenses is exclusively designed to stimulate creative expression and offer outstanding optical performance in movie, video and broadcast production. Reliable and robust, they include a host of advanced features, ensuring unsurpassed image quality and exceptional usability in every shooting situation.

Our current line up of Cinema lenses encompasses compact and lightweight, wide-angle and telephoto zoom lenses for EF and PL Mounts, and single-focal-lenses for EF Mounts. It also includes the latest addition to the range – the CN7x17 KAS S E1/P1– an EF or PL mount zoom lens with a servo drive unit designed for use with large sensor cameras in broadcast or handheld applications.

Main Features

Superb 4K optical performance for exceptional results

The Digital Cinema lens series with 4K quality, offers unrivalled optical performance in professional shooting environments. Large aspherical lens elements ensure sharp, consistent images in virtually every shooting situation. An innovative glass construction counteracts barrel expansion and contraction to avoid temperature-induced marking discrepancies.

Uncompromising operability for working professionals

Industry standard manual control rings are engineered to maintain the proper amount of resistance with consistent operating torque. Focus, zoom, and iris markings are provided on angled surfaces on both sides of the barrel, making it easy to read settings from behind or either side of the camera.

Versatile range of focal lengths

Together these lenses support versatile shooting at many focal lengths and cover the range most commonly used in cinema shooting. These include wide angle, telephoto zooms and prime lenses.

Highlights

Easy to switch accessories

Lenses are compatible with industry standard accessories. Unified front lens diameter and gear positions enable film crews to quickly change lenses without adjusting the rig setup.

11-blade iris

11-blade aperture diaphragms make the iris look circular even when contracted, enabling beautiful, round highlight bokeh.

CN-E18-80mm T4.4 L IS KAS S: A lightweight and versatile compact cine servo lens

Ready for anything, from movies and documentaries to corporate videos and drone shots

Stunning images in an affordable package. The Canon CN-E18-80mm T4.4 L IS KAS S Compact Cine Servo Lens is an ideal all-purpose lens: weighing only 1.2kg, it includes a fluid servo zoom and focus action, plus 3 stabilization modes for smoother footage, even in difficult shooting conditions.

Camera-to-lens communication is provided via EF mount, bringing powerful features including fast Dual Pixel CMOS auto focus, lens meta data acquisition, camera-to-lens servo power supply and peripheral illumination correction. With Canon's quality 4K-ready imaging, the compact cine servo lens delivers incredible natural bokeh and minimal focus breathing.

Digital Cinema Lenses

TOP-END 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 x 13.8mm	84.2° x 50.9° at 14.5mm 24.6° x 13.1° at 60mm		47.2° x 25.9° at 30mm 5.0° x 2.6° 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 x 13.8mm	71.2 x 37.5cm at 14.5mm 16.4 x 8.6cm at 60mm		107.9 x 56.8cm at 30mm 10.5 x 5.6cm at 300mm	
Front Diameter	ø136mm		ø136mm	
Approx. Size (W×H×L)	136.0 x 163.1 x 326.0mm 5.35 x 6.42 x 12.83in.	136.0 x 163.1 x 318.0mm 5.35 x 6.42 x 12.52in.	144.0 x 167.1 x 350.1mm 5.67 x 6.58 x 13.78in.	144.0 x 167.1 x 342.1mm 5.67 x 6.58 x 13.47in.
Approx. Mass	4.5kg (9.9lbs)		5.8kg (12.79lbs)	
Pitch of Follow Focus Gear	0.8		0.8	

COMPACT ZOOM LENS SERIES

Compact 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 x 13.8mm	80.4° x 48.0° at 15.5mm 31.1° x 16.7° at 47mm		47.2° x 25.9° at 30mm 14.2° x 7.5°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 x 13.8mm	47.6 x 25.1cm at 15.5mm 15.4 x 8.1cm at 47mm		35.3 x 18.6cm at 30mm 10.2 x 5.4cm at 105mm	
Front Diameter	ø114mm		ø114mm	
Approx. Size (W×H×L)	114.0 x 125.0 x 222.0mm 4.49 x 4.92 x 8.74in.	114.0 x 125.0 x 214.0mm 4.49 x 4.92 x 8.43in.	114.0 x 125.0 x 217.9mm 4.49 x 4.92 x 8.58in.	114.0 x 125.0 x 209.9mm 4.49 x 4.92 x 8.26in.
Approx. Mass	2.2kg (4.85lbs)		2.2kg (4.85lbs)	
Pitch of Follow Focus Gear	0.8		0.8	

PRIME LENS SERIES

Cine Prime Lens		CN-E14mm T3.1 L F	CN-E24mm T1.5 L F	CN-E 35mm T1.5 L F	CN-E50mm T1.3 L F	CN-E85mm T1.3 L F	CN-E135mm T2.2 L F
Mount		EF	EF	EF	EF	EF	EF
Focal Length		14mm	24mm	35mm	50mm	85mm	135mm
Zoom Ratio		—	—	—	—	—	—
Max. Relative Aperture (T-Number)		1:3.1	1:1.5	1:1.5	1:1.3	1:1.3	1:2.2
Iris Blades		11	11	11	11	11	11
Angle of View	1.5:1 36.0 x 24.0mm	104.3° x 81.2°	73.7° x 53.1°	54.4° x 7.8°	39.6° x 27.0°	23.9° x 16.1°	15.2° x 10.2°
	1.9:1 26.2 x 13.8mm	86.2° x 52.5°	57.3° x 32.1°	38.7° x 22.3°	29.4° x 15.7°	17.5° x 9.3°	11.1° x 5.9°
M.O.D. (from image sensor)		0.2m/8"	0.3m/12"	0.3m/12"	0.45m/18"	0.95m/3'2"	1.0m/3'4"
Object Dimensions at M.O.D.	1.5:1 36.0 x 24.0mm	24.8 x 16.5cm	28.8 x 19.2cm	20.1 x 13.4cm	24.9 x 16.6cm	34.3 x 22.9cm	21.1 x 14.1cm
	1.9:1 26.2 x 13.8mm	18.0 x 9.5cm	21.0 x 11.0cm	13.7 x 7.7cm	18.1 x 9.5cm	25.0 x 13.1cm	15.4 x 8.1cm
Front Diameter		ø114mm	ø114mm	ø114mm	ø114mm	ø114mm	ø114mm
Approx. Size (W x H x L)		118.4 x 118.4 x 94.0mm 4.66 x 4.66 x 3.70in.	118.4 x 118.4 x 101.5mm 4.66 x 4.66 x 4.0in.	118.4 x 118.4 x 101.5mm 4.66 x 4.66 x 4.0in.	118.4 x 118.4 x 101.5mm 4.66 x 4.66 x 4.0in.	118.4 x 118.4 x 101.5mm 4.66 x 4.66 x 4.0in.	118.4 x 118.4 x 115.6mm 4.66 x 4.66 x 4.55in.
Approx. Mass		1.2kg (2.65lbs)	1.2kg (2.65lbs)	1.1kg (2.43lbs)	1.1kg (2.43lbs)	1.3kg (2.87lbs)	1.4kg (3.09lbs)
Pitch of Follow Focus Gear		0.8	0.8	0.8	0.8	0.8	0.8

• M.O.D. = Minimum Object Distance

CINE SERVO

Cine Servo Lens	CN-E18-80mm T4.4 L IS KAS S	CN7x17 KAS S E1 / P1	CN20x50 IAS H E1 / P1
Mount	EF	EF / PL	EF / PL
Focal Length	18mm-80mm	17mm-120mm	50-1000mm (75-1500mm with 1.5x Extender)
Zoom Ratio	4.4x	7x	20x
Max. Relative Aperture (T-Number) (with Extender)	(T No.) 1:4.4 at 18.80mm (F No.) 1:4 at 18.80mm	1:2.95 at 17-91mm / 1:3.9 at 120mm	1:5.0 at 50-560mm / 1:8.9 at 1000mm 1:7.5 at 75-840mm 1:13.35 at 1500mm
Iris Blades	9	11	11
Angle of View 1.9:1 26.2 x 13.8mm (with Extender)	68.7 x 41.9 at 18mm 17.5 x 9.9 at 80mm	75.2° x 44.2° at 17mm 12.5° x 6.6° at 120mm	29.4°x15.7° at 50mm 1.5°x0.8° at 1000mm 19.8°x10.5° at 75mm 1.0°x0.5° at 1500mm
M.O.D. (from image sensor)	0.5m	0.85m/2.8" 0.1m from lens front with macro	3.5m/ 11.5" 1.54m from lens front with macro
Object Dimensions at M.O.D. 1.9:1 26.2 x 13.8mm (with Extender)	43.4 x 24.3cm [at 18mm] 9.5 x 5.3cm [at 80mm]	92.1° x 48.5° at 17mm 12.7° x 6.7° at 120mm	148.3×78.1cm at 50mm 7.8×4.1cm at 1000mm 98.9×52.1cm at 75mm 5.2×2.7cm at 1500mm
Front Diameter	ø77mm	ø114mm	ø136mm
Approx. Size (W x H x L)	93.4 x 107.2 x 182.3mm	174.2 x 125.0 x 262.9mm / 174.2 x 125.0 x 254.9mm 6.86 x 4.92 x 10.35 / 6.86 x 4.92 x 10.04in	175×170.6×413.2mm 175×170.6×405.2mm (EF/PL)
Approx. Mass	1.2kg (incl. servo unit)	2.9kg (6.39lbs)	6.6kg (14.55lbs)
Pitch of Follow Focus Gear	0.8	0.8	0.5 or 0.8

CN7x17 KAS S E1 / P1: **Features for broadcast use**

CN7x17 KAS S E1 / P1: **Features for cinema use**

Prime Lenses: **Highlights**

Ready for Full-size 35 mm Sensors
The lenses are also compatible with the large imaging area of cameras equipped with a full-size 35 mm-equivalent CMOS sensor.

Light, Compact
Small and light among conventional cinema lenses, to meet a variety of shooting needs.

Standard Accessories Supported
Supports industry-standard accessories such as power-drive devices and matte boxes.

Accepts 105 mm filters (except for 14mm)
PL or other individual filters 105 mm 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.

Fast Aperture
Enables shooting with the shallow DOF and broad bokeh that large sensors offer.

Comfortable Usability
Control rings maintain the right amount of resistance while offering exceptional usability with consistent operating torque.

Unified Front Lens Diameter, Gear Position
Compact Zoom and Prime lenses have same front lens diameter and consistent gear positions, so lenses within each series can be switched without adjusting the rig setup.

Prime Lens Series

Attractive Blurring
11-blade circular aperture enables soft, beautiful background bokeh.

Switchable Unit for Focus Marking
The outer piece on marked focus rings can be switched from non-metric to metric labeling.

Top-End/Compact Zoom Lenses: **Highlights**

Easy-to-read controls
Focus, zoom, and iris markings are provided on angled surfaces. These markings are easier to read from behind the camera.

Support Industry-standard Cameras
Supports industry-standard Super 35 mm equivalent and APS-C formats.

Light, Compact
Smaller and lighter than conventional cinema lenses, to meet a variety of shooting needs.

Marked on both sides
Lenses are marked on both sides. This makes markings visible from either side of the lens.

Switchable Unit for Focus Marking
The outer piece on marked focus rings can be switched from non-metric to metric labeling.

Comfortable Usability
Control rings maintain the right amount of resistance while offering exceptional usability with consistent operating torque.

New Inner Focus
Minimizes focus-induced changes in the angle of view.

Attractive Blurring
11-blade circular aperture enables soft, beautiful background bokeh.

Unified Front Lens Diameter, Gear Position
Uniform gear positions within the same categories eliminate the need for accessory gear position adjustment when switching lenses.

Top-End Zoom Lens Series

Compact Zoom Lens Series

Flange-Back Adjustment Mechanism
A covered flange-back adjustment mechanism is included, with broadcast applications in mind.

Remote Control Lenses

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.

See page 52

Remote Control Lens Series

BROADCAST APPLICATIONS: **HDTV**



	HJ18ex28B ITS-ME	HJ24ex7.5B ITS-ME	HJ18ex7.6B ITS-ME
Zoom Ratio	18x	24x	18x
Image Size	2/3"	2/3"	2/3"
Built-in Extender	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)



	HJ14ex4.3B ITS-ME	KJ17ex7.7B ITS-ME	KJ22ex7.6B ITS-ME
Zoom Ratio	14x	17x	22x
Image Size	2/3"	2/3"	2/3"
Built-in Extender	2.0x	2.0x	2.0x
Range of Focal Length (with Extender)	4.3-60mm 8.6-120mm (2.0x)	7.7-131mm 15.4-262mm (2.0x)	7.6-168mm 15.2-336mm (2.0x)

PRO-VIDEO APPLICATIONS: **HDTV**

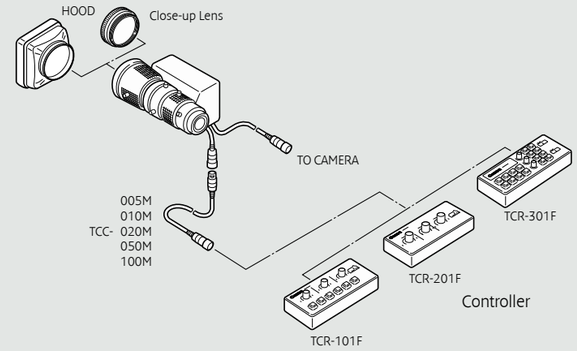
	KJ20x8.2B KTS	KT20x5B KTS
Zoom Ratio	20x	20x
Image Size	2/3"	1/3"
Built-in Extender	—	—
Range of Focal Length	8.2-164mm	5-100mm

• Please refer to page 32, 33 and 48 for more detailed specifications.

Control Accessories for Remote Control Lenses

Canon offers a choice of control accessories to meet a variety of remote image capture needs. Canon's Remote Control TV Lenses accept 3 types of standard controllers, as well as 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 50 for the applications.

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 motorised and can be remote controlled.

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

Connecting Cable

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

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

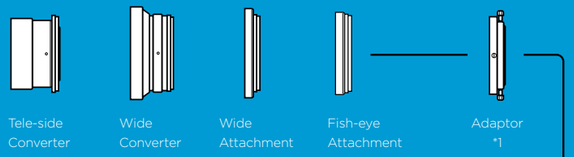
Remote Controller

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

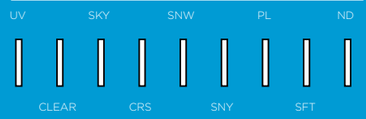
Optical Accessories for SDTV and HDTV ENG/EFP Lenses

System

1. Converters/Attachments



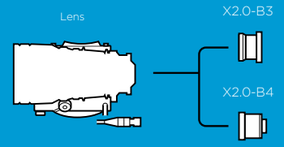
2. Filters



3. Close-up lenses

Hood Unit *2

4. Extenders



*1: Most Canon Converters and Attachments use a separate adapter ring as shown in the table on page 53, which allow compatibility between several lens models. The W80Y-85 is special Wide Converter and is exclusive to certain lens models as shown in the table on page 53.

*2: Some lens models allow for the filter to be attached to the threaded lens barrel, in other models, the filter is attached to the threaded hood unit. For lens model filter size compatibility, please refer to page 55.

Applications of SDTV and HDTV Adaptor Type Converters / Attachments

CONVERTER/ ATTACHMENT TYPE		MODEL NAME	CODE	APPLICABLE LENSES: 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	HJ24ex7.5B KH21ex5.7 KJ22ex7.6B
		Front Lens Diameter		ϕ85mm			ϕ98mm	
TELE-SIDE CONVERTER		T15 - II	1823A005		●		●	
		T15HD - II	0025T799			●		●
		Adaptor85 III	1824A002		●	●		
		Adaptor98 II	1824A004				●	●
WIDE CONVERTER		W80Y-85	1823A009	●				
		W80-B - III	1823A006		●		●	
		W80HD	1823A094			●		●
		Adaptor85 III	1824A002		●	●		
		Adaptor98 II	1824A004				●	●
WIDE ATTACHMENT		WA75 - II	1823A008		●		●	
		WA75HD	1823A095			●		●
		Adaptor85 III	1824A002		●	●		
		Adaptor98 II	1824A004				●	●
FISH-EYE ATTACHMENT		FEA-B - II	1823A011		●		●	
		FEA-HD	1823A099			●		●
		Adaptor85 III	1824A002		●	●		
		Adaptor98 II	1824A004				●	●

*1 The HD quality accessories offer higher optical performance.
*2 The drawing is an image of the W80-B III
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 above table.

1. Converters/Attachments

TELE-SIDE CONVERTER

- Focal length is shifted to the telephoto side by 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 2.25 times that of the original lens.

	M.O.D	Eclipse Point
HJ22ex7.6B	1.9m	f:85mm
KJ17ex7.7B	1.35m	f.60mm
YJ20x8.5B	2.00m	f:80mm

WIDE CONVERTER

- Focal length becomes wider by a factor of 0.8x that of the original lens with the W80/W80Y-85.
- F No. of the original lens is not affected.
- The minimal object distance becomes 0.64 times with the W80/W80Y-85.

	Master Lens	With Wide Con.
HJ22ex7.6B	7.6-168mm	6.1-134mm
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 focal length is widened by a factor of 0.75x that of the original lens.
- Focus is adjusted by use of the macro lever.

	Master Lens	With Wide Attach.
HJ22ex7.6B	7.6-168mm	5.7mm
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 focal length is widened by a factor of 0.6x that of the original lens.
- Focus is adjusted by use of the macro lever.

	Master Lens	With Fish-Eye
HJ22ex7.6B	7.6-168mm	4.6mm
KJ17ex7.7B	7.7-131mm	4.6mm
YJ20x8.5B	8.5-170mm	5.1mm

Mount Converters 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.

LO-32BMT
LCV-40B
LCV-42T

LCV-41E
LCV-20E

Converter	Image Size Conversion: Lens [3]	Camera	Shift Ratio to Telephoto Side	Electronic Conversion
LO-32BMT	2/3" B4 Mount	1/2" Sony [4]	approx. 1.4x	–
LCV-40B	2/3" B4 Mount	1/2" Standard Mount [5]	approx. 1.4x	–
LCV-42T	2/3" B4 Mount	1/3" Standard Mount	approx. 1.8x	–
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	–	Lens Cable (12 pin) → EX3 Hot Shoe (14 pin)

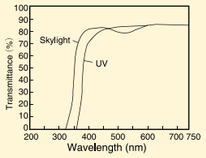
*3 The converters are to be used with lenses weighing less than 2.0kg (4.4lbs)
*4 SONY's Hot Shoes mount camera, excluding PMW-EX3
*5 1/2" Camera of standard type mount (Panasonic, JVC, Grass Valley)
*6 Only applicable to KH10ex/KH16ex/KH21ex. The other 1/2" mount lenses are not available.

2. Filters

UV

SKY

UV/CLEAR/SKY LIGHT FILTER



- A UV (ultraviolet) filter is nearly colourless. It absorbs short wavelength ultraviolet rays that the naked eye cannot see.
- A skylight Filter has a light pinkish colour. 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

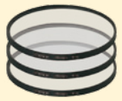
PL

- 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.

SOFTON FILTER

SFT

- A Soft-focus Filter has a met-like surface that imparts a soft, misty effect to the entire picture.
- Soft-focus Filterx 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

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

			APPLICABLE LENSES							
			CJ12ex4.3B HJ18ex28B HJ21ex7.5B HJ14ex4.3B KJ10ex4.5B KH10ex3.6	HJ40x14B HJ40x10B	HJ17ex6.2B KJ13x6B KH13x4.5 YJ13x6B	HJ24ex7.5B KJ22ex7.6B KH21ex5.7	HJ18ex7.6B HJ15ex8.5B KJ17ex7.7B KH16ex5.7 KJ20x8.2B KH20x6.4 KT17ex4.3B KT20x5 YJ20x8.5B	KT14x4.4B	CN7x17 KAS S E1/P1	CN20x50 IAS H E1/P1
FILTER TYPE	**MODEL NAME**	**CODE**								
HOOD UNIT THREAD SIZE			127mm P0.75	–	105mm P1	105mm P1	–	–	127mm P0.75	–
LENS BARREL THREAD SIZE			–	127mm P0.75	–	94mm P1	82mm P0.75	82mm P0.75	112mm P0.75	127mm H
UV	UV/127P0.75	1823A083	●	●					●	
	UV/105P1	1823A022			●	●				
	UV/94P1	1823A021				●				
	UV/82P0.75	1823A030					●	●		
CLEAR	CL/127	1823A093	●	●					●	
	CL/112	1823A103							●	
	CL/127H	0117T881								●
SKY LIGHT	SKY/105P1	1823A023			●	●				
	SKY/82P0.75	1823A031					●	●		
CROSS	CRS/127P0.75	1823A085	●	●					●	
	CRS/105P1	1823A024			●	●				
	CRS/82P0.75	1823A032					●	●		
SNOW CROSS	SNW/127P0.75	1823A087	●	●					●	
	SNW/105P1	1823A047			●	●				
	SNW/82P0.75	1823A034					●	●		
SUNNY CROSS	SNY/127P0.75	1823A088	●	●					●	
	SNY/105P1	1823A025			●	●				
	SNY/82P0.75	1823A033					●	●		
POLARIZED LIGHT	PL/127P0.75	1823A090	●	●					●	
	PL/105P1	1823A028			●	●				
	PL/82P0.75	1823A038					●	●		
SOFTON	SFT/127P0.75	1823A089	●	●					●	
	SFT/105P1	1823A027			●	●				
	SFT/82P0.75	1823A037					●	●		
ND	ND8/127P0.75	1823A086	●	●					●	
	ND4/82P0.75	1823A035					●	●		
	ND8/105P1	1823A026			●	●				
	ND8/82P0.75	1823A036					●	●		

3. 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 x S / (fc+S)
fc = Focal length of the close-up lens
S = M.O.D. pf the master lens

Model	Code	Applicable Lenses
82CL-UP800H	1823A041	YJ20x8.5B, KJ17ex7.7B, KJ20x8.2B, KH16ex5.7, KH20x6.4, KT17ex4.3B, KT20x5
82CL-UP1300H	1823A042	YJ20x8.5B, KJ17ex7.7B, KJ20x8.2B, KH16ex5.7, KH20x6.4, KT17ex4.3B, KT20x5
105CL-UP900H	1823A043	KH21ex5.7*, KJ22ex7.6B*
105CL-UP800HD	1823A096	HJ22ex7.6B, KH21ex5.7, KJ22ex7.6B*

* The HD quality accessories offer higher optical performance

	82CL-UP800H				82CL-UP300H			
KJ17ex7.7B (16:9)	**Tele end: 131mm**		**Wide end: 7.7mm**		**Tele end: 131mm**		**Wide end: 7.7mm**	
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)	58 x 33	24 x 14	989 x 556	376 x 212	95 x 53	29 x 16	1634 x 919	455 x 256
YJ20ex8.5B (4:3)	**Tele end: 170mm**		**Wide end: 8.5mm**		**Tele end: 170mm**		**Wide end: 8.5mm**	
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)	41 x 31	20 x 15	816 x 609	390 x 293	67 x 50	26 x 20	1341 x 1006	494 x 371

4. 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.

		Master lens	With Extender
YJ20X8.5B	Focal length	8.5 ~170mm	17 ~340mm
	F-number	1.8 ~2.7	3.6 ~5.4

* Only for 2/3 lenses

Model	Code	Applicable Lenses
X2.0-B3	1823A041	Applicable to all B3 type mount Canon 2/3" lenses
X2.0-B4	1823A042	Applicable to all B4 type mount Canon 2/3" lenses