

**Canon**

# HJ21ex7.5B



**eHD XS**

# HJ21ex7.5B



## Canon's Philosophy

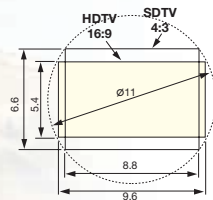
Canon has always developed new technology with four basic philosophies, "High Quality of Picture", "Ease of Operation", "High Specification" and "Minimize Environmental Impact". Canon's HDTV lenses are, so to speak, a compilation of our basic philosophies. Canon is the only manufacturer to offer a complete line of HDTV lenses to match our customers requirements. Complete "Customer Satisfaction" is our goal.



## Overall Comparison Between HDTV and SDTV

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

2/3 inch	HDTV	SDTV
Image format	9.6×5.4	8.8×6.6
Nominal frequency	600TVL	400TVL
Spatial frequency	55line pairs/mm	30line pairs/mm



## Canon's Technology eHDXs

Canon proudly offers our Broadcasting Lens Technology, eHDXs. The eHDXs technology consists of two meanings that start with the letter "e". One is the "ecological design", a design harmless to the environment. The other is the "enhanced digital" technology which improves the performance of the digital drive unit. Of course the new technology inherits all the advantages of its predecessor, the HDxs technology, which includes the advanced optical design concept, based on the X-Element technology.

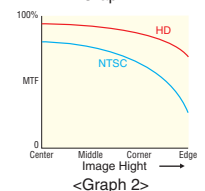
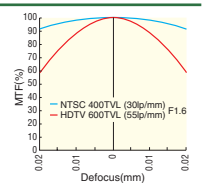
### Enhanced Optical Technology

#### Special Optical Elements

Canon has always made an effort to research special optical elements since our beginnings in this industry with the goal of minimizing chromatic aberration. These efforts have included an artificial element, "Fluorite", with extraordinary dispersion characteristics and the newly developed "Hi-UD" (high index ultra low dispersion) glass. Canon has succeeded in the practical use of special elements along with advanced design techniques like "separate achromatism". Canon TV zoom lenses carry a "Green Ring" on the focus barrel, a symbol of our high quality. Canon has developed a break through in optical design technology known as the "Power Optical System" whose heart is the "X-Element". By using the "X-Element" to its maximum power in the specially designed optical layout, higher specifications and quality can be achieved in smaller and lighter lenses. The lenses designed using the "Power Optical System" are known as the "XS-series".

#### Aberration Correction for HDTV Lenses

The pixel size is about half in the HDTV system, and therefore the spread of a point image caused by a spherical aberration, coma, etc. should be diminished to about half. Even if the image is slightly out of focus, MTF is greatly influenced. The graph 1 shows how MTF varies when the focus changes. Canon HDxs series lenses employ the HD version of the Power Optical System, which incorporates the X-Element. HDxs greatly contributes to correcting and minimizing these aberrations at the same time, maintaining high MTF throughout the edge of the picture (graph 2).



### Enhanced Digital Drive

All eHDXs lenses are equipped with an informational display and Digital Function Selector, an X-Y axis switch, so that the user can customize the enhanced digital functions much more easily and precisely. This new design enables the user to fully bring out the digital functions.

## Main Features

### Shuttle Shot

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



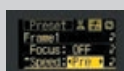
### Framing Preset

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



### Speed Preset

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







## Rotary Encoder

Canon offers a complete series of eHDxs lenses, which are equipped with an enhanced digital drive unit. Conventional potentiometers are analog positional sensors capable of only 8-10 bit equivalent resolution. Thus virtual ENG studio systems called for an optional Encoder Unit to be put on the zoom and focus ring of the lens. With the introduction of 16 bit resolution Rotary Encoder Devices built into the new enhanced digital drive unit, the lens 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 of 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 made the Encoder Device surprisingly small to be installed in the existing drive unit without changes in size or weight.



## Ecological Design

It is Canon's policy not to pollute the earth and the eHDxs series have avoided using any materials or substances that could pollute the environment.

## Internal Rotary Encoder Devices

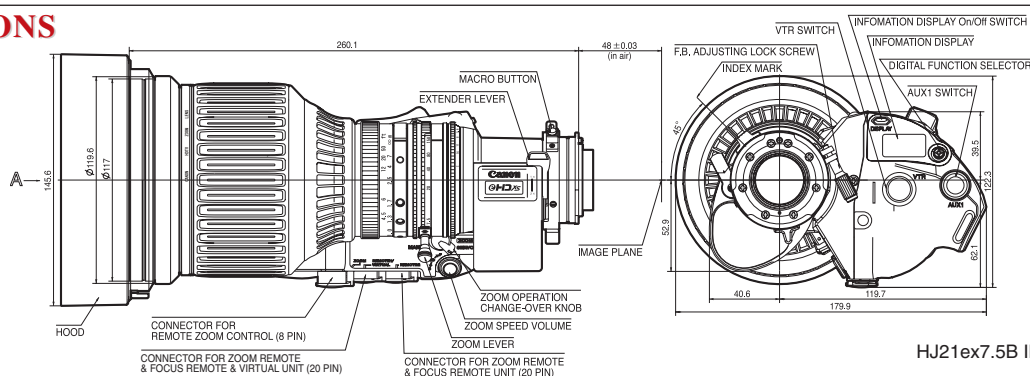
## Ecological Design



## SPECIFICATIONS

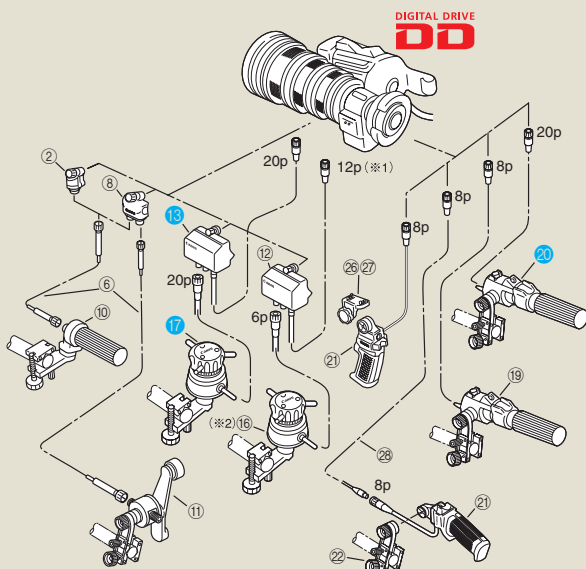
HJ21e×7.5B	16:9		SWITCHABLE 4:3		
Built-in extender	1.0×	2.0×	1.0×	1.2×	2.4×
Zoom Arrio	21×				
Range of Focal Length	7.5~158mm	15.0~316mm	6.2~130mm	7.5~158mm	15.0~316mm
Maximum Relative Aperture	1:1.9 at 7.5~116.0mm 1:2.6 at 158mm	1:3.8 at 15.0~232.0mm 1:5.2 at 316mm	1:1.9 at 6.2~116.0mm 1:2.15 at 130mm	1:1.9 at 7.5~116.0mm 1:2.6 at 158mm	1:3.8 at 15.6~232.0mm 1:5.2 at 316mm
Angular Field of View	65.2°×39.6° at 7.5mm 3.50°×2.00° at 158mm	35.5°×20.4° at 15.0mm 1.70°×1.00° at 316mm	60.8°×47.5° at 6.2mm 3.20°×2.40° at 130mm	51.3°×39.6° at 7.5mm 2.60°×2.00° at 158mm	27.0°×20.4° at 15.0mm 1.30°×1.00° at 316mm
Minimum object Distance (M.O.D)	0.85m (10mm with Macro)				
Object Demensions at M.O.D	120.4×67.7cm at 7.5mm 5.60×3.20cm at 158mm	60.2×33.9cm at 15.0mm 2.80×1.60cm at 316mm	110.1×82.6cm at 6.2mm 5.10×3.80cm at 130mm	89.3×67.0cm at 7.5mm 4.20×3.20cm at 158mm	44.7×33.5cm at 15.0mm 2.10×1.60cm at 316mm
Approx. Size	W×H×L = 179.9×122.3×260.1 mm				
Approx. Mass (IRSE/IASE)	2.63Kg (5.81lbs) / 2.73Kg (6.03lbs)				

## DIMENSIONS



HJ21e×7.5B IRSE/IASE (Unit:mm)

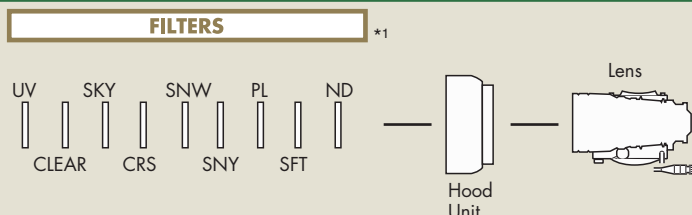
## Control Accessories



(#1) 33 CC-2012 conversion cable is necessary to connect between IRSD Digital Drive Lens and FPM-420.  
 (#2) 32 CC-2006 conversion cable is necessary to connect between IASD Digital Drive Lens and FPD-400.

#	Unit	Description	CODE
2	FFM-100	Flex Focus Module	1824A015
6	FFM-200	Flex Dual Module	1824A013
8	FC-40	Flex Cable	1824A010
10	FFC-200	Flex Focus Controller	1824A014
11	FZC-100	Flex Zoom Controller	1824A021
12	FPM-420	Focus Positional Servo Module	1824A026
16	FPM-420D	Focus Positional Servo Module	1824A129
14	FPM-500	Focus Positional Servo Module	1824A027
16	FPD-400	Focus Positional Demand	1824A018
17	FPD-400D	Focus Positional Demand	1824A124
19	ZSD-300A*/M	Zoom Demand (A or M types, depends on applicable camera)	A 1824A066 M 1824A067
20	ZSD-300D	Zoom Demand	1824A123
21	ZSG-200A*/M	Zoom Servo Grip (A or M types, depends on applicable camera)	A 1824A068 M 1824A069
22	CR-10	Clamper	1824A007
26	ZGA-400**	Grip Adapter	0025T616
28	EC-80	Zoom Extension Cable (8P)	1824A009
32	CC-2006	Conv. Cable (20pM-6pF)	1824A125
33	CC-2012	Conv. Cable (20pM-12pF)	1824A126

## Optical Accessories



TYPE	MODEL
Ultra Violet	UV/127mm
ND8(12.5% Transmittance)	ND8/127mm
Softon	SFT/127mm
Cross Screen	CRS/127mm
Snow Cross	SNW/127mm
Sunny Cross	SNY/127mm
Polarized Light	PL/127mm

\*1 The filters are to be attached to the threaded hood unit.

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