NEW IN 2012

XJ95x8.6B
XJ80x8.8B
HJ17ex6.2B
XJ76x9B

2012 POCKET GUIDE

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**EF Cinema Lenses**

**ADVANCED OPTICAL PLATFORM**
- 4K and 2K and HD

For Large-Format Single-Sensor Cine and Motion Picture Film Cameras

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**HD Lens Category**

**PRODUCTION PLATFORM 1**
- Highest Optical Performance Possible With Contemporary Optical Technologies
  - Most Advanced Optical Technologies
  - Rugged Magnesium Optomechanics
  - With 2x Extender
  - Precision Digital Servos for Zoom, Iris, and Focus

**PRODUCTION PLATFORM 2**
- Lowest Cost Possible With Credible HD Performance
  - Cost-Effective Optics
  - Rugged Magnesium Optomechanics
  - With 2x Extender
  - Precision Digital Servos for Zoom, Iris, and Focus

**PRODUCTION PLATFORM 3**
- Significant Cost Reduction
  - Cost-Effective Optics
  - Lower-cost Optomechanics (Aluminum and Plastic)
  - Analog Servos for Zoom, Iris, and Focus

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Canon has produced two high performance
Cinema zoom lenses as
integral components of the
Cinema EOS system.
Between the two lenses, they cover the focal ranges
most commonly encountered in moviemaking and high-end
television production. The wide angle
CN-E14.5 – 60mm T2.6 L SP is a new
generation cine zoom lens whose design
is based upon a new optical platform that sought beyond-4K
performance. In every sense, the lens can be used as a variable prime
lens – offering superb contrast and sharpness across the Super 35mm
image plane, constant optical speed over the entire focal range, and
virtually zero focus breathing. Chromatic aberrations and geometric
distortion are imperceptible.

The telephoto CN-E 30 – 300mm T2.95-3.7 L SP offers an extended
range of focal lengths that will cover most requirements in television
production as well as special requirements in moviemaking. This lens
was also designed to exceed 4K optical specifications.

These precision matched lenses ensure the highest imaging
performance in contemporary digital HD cine cameras while definitively
future-proofing the transition to digital 4K motion imaging. Computer
simulation based upon the ISO Color Contribution Index (CCI) was
employed to achieve a very tight match in color reproduction between
these lenses. Canon’s innovative optomechanical design counteracts
temperature-induced marking discrepancies. An 11-blade aperture
diaphragm produces a highly aesthetic bokeh.

Uncompromising Design for Working Professionals
Each lens has markings on angled
surfaces on both sides of the barrel,
making it easy to read settings from
behind or either side of the camera,
and they can be switched from
standard to metric depending on
production need. Control rings
maintain the proper amount of
resistance with consistent operating
torque. A covered flange-back
adjustment mechanism is included as
well. They are also among the lightest
and smallest lenses in their class. Both
lenses share the same gear position, diameter, rotation angle, plus the
same front lens diameter and compatibility with third-party accessories,
allowing for crews to easily change between the two lenses without
adjustments to the rig setup.

Anticipating the boom in popularity of 3D, Canon has been actively
engaged with HD camera manufacturers, 3D rig specialists, and
enterprising content creators presently exploring 3D program
origination in moviemaking, as well as television coverage of
sports, concerts, and special events. Recognizing the importance
of 3D program origination, Canon gave priority to adoption of most
of the standard HD lens series for 3D production systems.

3D Lens Solutions
A pioneer in the development of precision Digital Drive Units for its
portable lenses, Canon’s 3D control systems for lens-camera pairs
capitalize on the ability to synchronize the servo control systems
within the pair, and to then use the associated menu system to
enter correction data that ensures precision tracking for their
respective zoom, iris, and focus operations. A simple 20pin -
20pin 3D bridge cable interconnects the stereoscopic lens pair,
and special 3D software loaded into the two Digital drive Units
performs the requisite synchronization. A single Zoom controller
connected to one lens will then simultaneously control the zoom
action of both lenses. Similarly, a single Focus controller
connected to the other lens will simultaneously control the focus
operation of both lenses. The 3D software can be installed into
most standard Canon lenses at Canon service centers.

3D Lens Controllers
A special attraction of Canon’s synchronous lens control system is
the use of standard rather than specialized controllers. When the
3D software is installed in the lens drive units, all standard servo
controllers for zoom and focus will be fully compatible with
Canon’s stereoscopic lens-pair, thus facilitating a significant cost-
saving when deploying standard lenses for 3D acquisition
systems.

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).
The unparalleled quality offered by the DIGISUPER Series by Canon has made it a highly visible fixture at sporting events around the world and a heavy favorite of professional camera operators. As one of Canon’s leading lens series for broadcast use, the DIGISUPER line has introduced numerous technological innovations while capturing memorable scenes with the best possible quality, so that they may be enjoyed by future generations.

Amid the global growth in high-definition program production in recent years, Canon has maintained a strong relationship with content producers, to ensure that our evolving products continue to satisfy the needs of such a dynamic industry. In particular, the call has been strong to make long zoom field lenses wider and with higher magnification to help convey the intensity and dynamism of the scene at hand, while also calling for enhanced operability and image stability.

With this in mind, Canon has introduced three new-generation lenses to its renowned DIGISUPER line: The DIGISUPER 95, DIGISUPER 80, and DIGISUPER 76 (models XJ95x8.6B, XJ80x8.8B, and XJ76x9B, respectively). Each represents the culmination of unceasing research and development to improve wide-angle performance, zoom range, and overall optical image quality.

The DIGISUPER 95 provides the widest angle (8.6mm) of any long zoom HD field lens currently in the industry, along with an extended 95x zoom range to allow capture of more dramatic images at either end of the zoom range. Both the DIGISUPER 95 and DIGISUPER 80 come equipped with the latest version of Canon’s Shift-IS Image Stabilization technology. This totally new IS system design reflects experiences gained worldwide over the past decade that led to deployment of a totally new sensing system, new correction algorithm, and higher-speed control loop. The new system extends the frequency range of correction ensuring high image stability under a wide variety of real-world perturbations and vibrations encountered in all forms of outside broadcast coverage. The new algorithm can instantly separate operational panning and tilting movements from unwanted physical disturbances thus effectively eliminating the former troubling IS-related overshoot accompanying such operations.

The new long zoom DIGISUPER 76 was designed to be a cost-effective HD field lens providing increased focal range and enhanced optical performance.

As HD continues to become the worldwide standard for all forms of broadcast TV production, there is an increasing need for versatility in HDTV lenses that enable more efficient production operations without sacrificing high picture quality. In particular, for broadcast newsgathering there has been increasing demand for the combination of a wider angle performance with sufficient telephoto capability within one lens to help control capital equipment expenditures for large news crews.

To fulfill the needs of users such as these, Canon developed the HJ17ex6.2B, embodying the uncompromising high-dimensional quality for which our products are known. The HJ17ex6.2B is fully equipped with the latest state-of-the-art Canon optical technologies, and serves as a highly innovative premium versatile HDTV lens.

The HJ17ex6.2B is capable of adapting flexibly to all manner of situations, whether shooting in close proximity to a subject or shooting close-ups from far away, without the need for changing lenses, thanks to its short M.O.D., extra-wide angle, 17X magnification, and built-in 2X extender.

The HJ17ex6.2B provides the same magnification (17x) as our well-established HDTV production lens, the HJ17ex7.6B, while achieving a wider focal length of 6.2mm and shortening M.O.D. by approximately 30% (0.4m).

Offering optimum mobility, the HJ17ex6.2B is an important new addition to the HDxs Series (Canon’s premier HDTV lens lineup) of lenses that collectively can cover a full range from Super Telephoto (1,120mm) to Super Wide (4.3mm). Professional users are now more able to select the appropriate lens for their expressive needs, and produce video with the high quality for which HDxs is renowned.
**XU-80 / XU-80W**
Indoor/Outdoor HD Pan-Tilt-Zoom Camera System

As the worldwide transition to HD imaging continues to accelerate, many video content creators—including broadcasters, cable networks, Houses of Worship, and diverse businesses—are seeking cost-effective, turnkey, remotely-controllable Pan-Tilt-Zoom HD camera systems to provide unique visual perspectives while ensuring high image quality of the production.

To meet these disparate needs, Canon has harnessed multiple advanced technologies and its experience in HD optics and robotics to produce a more cost-effective, integrated HD PTZ Camera System offering exceptional picture quality. The XU-80 is a versatile single-CMOS camera system, featuring a high waterproof and dustproof design. The XU-80W features a wiper blade and ND filter for outdoor use.

Utilizing a Canon 20x HD Zoom Lens, it captures exceptional, high-quality images in full-HDTV format. The camera can be mounted upright or inverted and offers auto image-flip when tilting beyond 90°.

The XU-80 incorporates high operability optimized for broadcast applications. By pressing a single pre-set button on operation panel (provided optionally), the camera head pans and tilts very smoothly while simultaneously zooming, allowing for on-air movements similar to manually-operated cameras. Also, the XU-80 utilizes HD-SDI output, the serial digital interface standard in the broadcast market, which enables it to transmit flawless HD video over distances up to 100m.

**Ideal For:**
- Outdoor Event Broadcasting
- Weather POV
- Traffic POV
- Outdoor Monitoring
- House of Worship
- Education
- Indoor Event Broadcasting
- Video Conferencing

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**BU-51H**
Indoor HD Pan-Tilt-Zoom Camera System

Canon’s BU-51H indoor remote-control HD PTZ camera features a built-in microphone with adjustable settings. Designed for environments where quiet operation is essential—including recital halls, lecture rooms, and auditoriums—the BU-51H features a maximum noise level of NC30. The BU-51H is also equipped with pan-tilt-zoom focus position information output for integration with virtual-studio systems and other specialized applications.

**Ideal For:**
- House of Worship
- Education
- Indoor Event/IMAG
- Newsroom/Studio

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**BU-46H**
Outdoor HD Pan-Tilt-Zoom Camera System

The Canon BU-46H outdoor remote-control HD PTZ camera features a weatherproof housing that meets the IP-45 specifications for dust- and waterproof-efficiency. The camera also features a remote-control ND (neutral density) filter; its housing includes a “windshield-wiper” type blade to keep its lens port clear. The BU-46H can pan through ±340 degrees and tilt +30 degrees ~ -50 degrees in highly precise and smoothly choreographed movements specifically designed to address multiple applications. The BU-46H is designed for exterior POV applications such as sports stadiums, horse-racing tracks, broadcast television “skycams,” and many others.

**Ideal For:**
- Outdoor Events
- Weather POV
- Traffic POV
- Tourism Promotion
**DIGISUPER 27AF** and **DIGISUPER 27** Auto-Focus Option

The DIGISUPER 27 and DIGISUPER 27AF HD studio lenses (models XJ27x6.5B and XJ27x6.5B AF, respectively) deliver unprecedented performance for HD studio production applications. Both provide Canon's widest available angle in a studio lens, a focal length (zoom ratio) of 6.5mm to 180mm, and newly developed multi-layer optical coatings that dramatically reduce ghosting and flaring. Both also offer Canon's optional BWA-271 0.9x Wide Attachment, the industry's first wide-angle attachment for an HD studio lens. This “zoom-through” Wide Attachment enables users to begin with a wide shot and go telephoto without compromising light transmission. This feature alters the range of the zoom on wide settings by ten percent toward the wide side, making a new zoom range of 5.85mm to 162mm.

Other innovations in the DIGISUPER 27 and DIGISUPER 27AF HD studio lenses include a servo-zoom speed of 0.5 seconds and a new optional remote-controllable macro-focus feature that allows the camera operator to perform macro focusing from the pan bar (a helpful tool for focusing on jewelry and other small objects).

**Auto Focus Optimized for the HD Studio**

The DIGISUPER 27AF HD studio lens delivers the benefits of Canon’s Auto Focus technology to the HD studio environment. Utilizing sophisticated Auto Focus capabilities based on a proprietary HD implementation of Through-the-Lens Secondary Image Registration Phase Detection Method technology, the DIGISUPER 27AF HD lens is optimized for studio use. The tremendous picture detail contained in HDTV makes anything in less-than-perfect focus immediately obvious. The DIGISUPER 27AF HD studio lens assists camera operators in ensuring that sharpest focus on a chosen scene subject is achieved each and every time.
Canon’s H J15ex8.5B KRSE-V is the world’s first HDTV portable 2/3-inch zoom lens with a built-in Optical Image Stabilizer. Designed to maintain stable images even when the lens-camera is subject to jolts and vibrations, the HJ15ex8.5B KRSE-V uses Canon’s patented Vari-Angle Prism image-stabilizer (VAP-IS) technology. Its high degree of compensation is sustained all the way from telephoto to wide-angle settings. This is of particular importance considering the extreme image detail associated with HD acquisition. This unique technology greatly extends flexibilities in EFP shooting on location - all within a compact high-performance lens to weigh in at only 4.4 lbs.

Canon’s Vari-Angle Prism technology entails a novel optical group made up of two flat glass elements and a sealed bellows containing a high refractive index liquid, selectively placed within the lens overall optical system. Physical perturbations to the lens, in the form of jolts or vibrations, flex the bellows proportional to the amplitude of these disturbances. The associated distortion of the liquid instantaneously alters the direction of the transmitted light rays in a manner designed to counter the incoming light ray displacements created by these disturbances. The system has been optimized to introduce a high-degree of real-time compensation for image instabilities arising from all forms of lens-camera operational unsteadiness.

The HJ15ex8.5 B KRSE-V is ideally suited for diverse challenging outdoor shooting situations because it can stabilize a broad range of vibration frequencies. Examples range from the low-frequency vibrations encountered on a camera operator’s shoulder in a crowd situation, to tripod-mounted operation on shaky platforms, to the higher-frequency vibration that cameras are subject to when operated on vehicles, motorbikes, boats, or helicopters. Four selectable stabilization modes are available to facilitate optimization of the degree of correction under diverse, and sometimes unique, shooting conditions.

The effectiveness of the image stabilization system was highlighted in the coverage by a major European production company of the Tour de France, whose camera operator was shooting hand-held from a motorbike pillion, and consistently delivered rock-steady close-ups of the cyclists even on very uneven roads.

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**HJ14EX4.3B IRSE/IASE**

2/3” Wide Angle HD Lens

After nearly a decade of advances in its world-renowned optical R&D - and ongoing dialogue with hands-on users worldwide - Canon has introduced the evolutionary next-step in high definition imaging: the HJ14ex4.3B IRSE/IASE wide-angle portable HDTV lens. Totally new and unique in its design, the HJ14 is the product of Canon’s very latest optical design tools, newly developed glass elements, and highly advanced optical coatings. In addition, the HJ14’s newly developed Digital Drive unit provides improved operability and ergonomic advances for user comfort and convenient control of lens functions.

**Wide, Advanced Optical Performance**

Canon’s HJ14 wide-angle portable HDTV lens features a minimum focal length of 4.3mm and an angular field of view of 96.3° at the wide end of the 16:9 HDTV aspect ratio. This optical performance is combined with a 14x zoom range reaching to 60mm (120mm with extender), which greatly expands creative options for the acquisition of crystal-clear, and virtually distortion-free HDTV video images.

**Improved Operability, Digital Drive, and Lighter Weight**

Employing free-form curves based on the shape of human hands, Canon mechanically redesigned its new Digital Drive unit to be more ergonomically friendly, making it narrower and shorter, and opening more space for manual focusing. It also features newly developed coatings and a new rubber grip support for a better tactile interface. The overall result is the enhancement of user interface and the reduction of stress and fatigue, especially during prolonged shooting. The HJ14ex4.3B also employs a smaller hood, which helps the camera operator view more of the actual scene.
Along with continually innovating optical performance, Canon strives to enhance the production experience, as evidenced with our latest digital drive unit. Refined by long-term market research and worldwide experience, Canon mobilized the latest in 3D CAD-CAM design to significantly improve the human tactile interface to the control of zoom, iris, and focus. As a result, the digital drive unit features:

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

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

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

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Canon engineered its HDgc line of cost-effective HD zoom lenses to support the new generation of economical portable HD camcorders and HD POV cameras from all of the major professional camera manufacturers. Whether a camera uses a 2/3, 1/2, or 1/3-inch imager, there’s a Canon HDgc portable lens that’s just right for it. Canon’s HDgc lens line offers a dozen models, some including Canon’s exclusive eDrive feature enabling users to automate control of iris, zoom, focus, and position memory settings.

**Canon eDrive: Enhancing Digital Servo Control of Zoom Lenses**

**HDgc Lenses Support The Expanding 2/3”, 1/2” and 1/3” HD Acquisition Applications**

- **2/3”** KJ20x8.2B IRSD
- **1/2”** KH21ex5.7 IRSE A
- **1/3”** KT17ex4.3B IRSE
### PL Mount EF Cinema Lenses

**Lens**
- CN-E14.5-60mm T2.6 L SP

**Mount Type**
- PL

**Zoom Ratio**
- 4.1x

**Focal Length Range**
- 14.5-60mm

**Number of Iris Blades**
- 11

**Angular Field-of-View**
- 1.78:1 24.6 x 13.8 mm

**Max Aperture T-Number**
- 1.26 at 14.5-60mm

**M.O.D. from Image Sensor**
- 2.4” / 0.7 m

**Scene Object Dimensions at M.O.D.**
- 1.78:1 24.6 x 13.8 mm
- 1.78:1 24.0 x 13.5 mm

**Size (W x H x L)**
- 5.35 x 6.42 x 12.52 in. (136.0 x 163.1 x 318.0 mm)

**Weight**
- 9.9 lbs (4.5 kg)

**Front Diameter**
- Ø 136mm

### Production Platform 1

**2/3” ENG/EFP Zoom Lenses**

**Lens**
- HJ17ex6.2B IRSE/IAS E

**Zoom Ratio/Format**
- 17X

**Range of Focal Length (with Extender)**
- 1:1.8 at 6.2mm-65.8mm
- 1:2.7 at 106mm
- 1:3.6 at 12.4mm-131.6mm
- 1:5.4 at 212mm

**Maximum Relative Aperture (with Extender)**
- 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

**M.O.D.**
- 0.4meter (10mm with Macro)

**Size (W x H x L)**
- 165 x 112.3 x 240.5mm

**Weight (approx.)**
- 4.34lbs (1.97kg)

**Built-in Extender**
- 2.0X

**Lens**
- HJ14ex4.3B IRSE/IAS E

**Zoom Ratio/Format**
- 14X

**Range of Focal Length (with Extender)**
- 4.3-60mm
- 4.7° x 2.6° at 300mm

**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

**Angular Field of View 16:9 (with Extender)**
- 96.3° x 64.2° at 4.3mm
- 9.1° x 5.2° at 60mm
- 42.3° x 24.6° at 12.4mm
- 2.6° x 1.5° at 212mm

**M.O.D.**
- 0.30m (10mm with Macro)

**Size (W x H x L)**
- 163.5 x 110.8 x 247.8mm

**Weight (approx.)**
- 4.387lbs (1.99kg)

**Built-in Extender**
- 2.0X

**Lens**
- HJ15ex8.5B KRSE-V

**Zoom Ratio/Format**
- 15X

**Range of Focal Length**
- 8.5-128mm

**Maximum Relative Aperture**
- 1:2.5 at 8.5-68mm

**Angular Field of View 16:9**
- 58.9° x 35.2° at 8.5mm
- 4.3° x 2.4° at 128mm

**M.O.D.**
- 0.8m (10mm w/ Macro)

**Size (W x H x L)**
- 170.2 x 119.1 x 239.1mm

**Weight (approx.)**
- 4.37lbs (1.99kg)

* please refer to Production Platform chart on page 2
### Super Tele

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<th>Lens</th>
<th>HJ17ex7.6B IRSA/IASEA A</th>
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<tr>
<td>Zoom Ratio/Format</td>
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<tr>
<td>Range of Focal Length (with Extender)</td>
<td>7.6-130mm (15.2-260mm)</td>
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<td>Maximum Relative Aperture (with Extender)</td>
<td>1:1.8 at 7.6 - 97.5mm 2.4 at 130mm (1:3.6 at 15.2 - 195mm) (1:4.8 at 260mm)</td>
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<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>64.6° x 39.1° at 7.6mm 4.2° x 2.4° at 130mm (35.1° x 20.1° at 15.2mm) (2.1° x 1.2° at 260mm)</td>
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<td>M.O.D.</td>
<td>0.6m (10mm w/Macro)</td>
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<tr>
<td>Size (W x H x L)</td>
<td>159.3 x 106.6 x 206.4mm</td>
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<tr>
<td>Weight (approx.)</td>
<td>3.53lbs (1.6kg)</td>
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<td>Built-in Extender</td>
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<td>Zoom Ratio/Format</td>
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<td>Range of Focal Length (with Extender)</td>
<td>7.6-168mm (15.2-336mm)</td>
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<td>Maximum Relative Aperture (with Extender)</td>
<td>1:1.8 at 7.6-114.1mm 1:2.65 at 168mm (1:3.6 at 15.2-228.2mm) (1:5.3 at 336mm)</td>
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<td>Angular Field of View 16:9 (with Extender)</td>
<td>64.6° x 39.1° at 7.6mm 3.27° x 1.84° at 168mm (35.1° x 20.1° at 15.2mm) (1.64° x 0.92° at 336mm)</td>
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<td>M.O.D.</td>
<td>0.85m (10mm w/Macro)</td>
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<td>Size (W x H x L)</td>
<td>164.7 x 112.1 x 221.5mm</td>
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<tr>
<td>Weight (approx.)</td>
<td>4.0lbs (1.81kg)</td>
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### EFP

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<th>HJ18ex28B IASE A</th>
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<tr>
<td>Zoom Ratio/Format</td>
<td>18x</td>
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<td>Range of Focal Length (with Extender)</td>
<td>28-500mm (56-1000mm)</td>
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<td>Maximum Relative Aperture (with Extender)</td>
<td>1:2.8 at 28-286mm 1:4.9 at 500mm (1:5.6 at 56-572mm) (1:9.8 at 1000mm)</td>
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<td>Angular Field of View 16:9 (with Extender)</td>
<td>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)</td>
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<td>M.O.D.</td>
<td>2.2m (10mm w/Macro)</td>
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<td>Size (W x H x L)</td>
<td>176.2 x 123.6 x 268.3mm</td>
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<tr>
<td>Weight (approx.)</td>
<td>5.65lbs (2.563kg)</td>
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<td>Zoom Ratio/Format</td>
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<td>Range of Focal Length (with Extender)</td>
<td>10-400mm (20-800mm)</td>
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<td>Maximum Relative Aperture (with Extender)</td>
<td>1:2.0 at 10-220mm 1:3.65 at 400mm (1:4.0 at 20-440mm) (1:7.3 at 800mm)</td>
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<td>Angular Field of View 16:9 (with Extender)</td>
<td>51.3° x 30.2° at 10mm 1.4° x 0.8° at 400mm (27° x 15.4° at 20mm) (0.7° x 0.4° at 800mm)</td>
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<td>M.O.D.</td>
<td>2.8m (10mm w/Macro)</td>
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<td>174.1 x 133 x 335.4mm</td>
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<td>Weight (approx.)</td>
<td>11.90lbs (5.40kg)</td>
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<td>Zoom Ratio/Format</td>
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<td>Range of Focal Length (with Extender)</td>
<td>7.5-158mm (15-316mm)</td>
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<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:1.9 at 7.5-116mm 1:2.6 at 158mm (1:3.8 at 15-232mm) (1:5.2 at 316mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>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)</td>
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<td>M.O.D.</td>
<td>0.85m (10mm w/Macro)</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>175.2 x 122.5 x 260.1mm</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>5.94lbs (2.69kg)</td>
</tr>
<tr>
<td>Built-in Extender</td>
<td>2.0X</td>
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<table>
<thead>
<tr>
<th>Lens</th>
<th>HJ40x14B IASD-V TELE</th>
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<tbody>
<tr>
<td>Zoom Ratio/Format</td>
<td>40X</td>
</tr>
<tr>
<td>Range of Focal Length (with Extender)</td>
<td>14-560mm (28-1120mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:2.8 at 14-307mm 1:5.1 at 560mm (1:5.6 at 28-614mm) (1:10.2 at 1120mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>37.8° x 21.8° at 14mm 1.0° x 0.6° at 560mm (19.4° x 11.0° at 29mm) (0.5° x 0.3° at 1120mm)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>2.8m (10mm w/Macro)</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>174.1 x 133 x 355.5mm</td>
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<tr>
<td>Weight (approx.)</td>
<td>12.0lbs (5.45kg)</td>
</tr>
<tr>
<td>Built-in Extender</td>
<td>2.0X</td>
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</tbody>
</table>
### DIGISUPER 95

- **Lens:** XJ95x8.6B
- **Zoom Ratio/Format:** 95x
- **Range of Focal Length (with Extender):** 8.6-820mm (17.2-1640mm)
- **Maximum Relative Aperture (with Extender):**
  - 1:1.7 at 8.6-340mm
  - 1:4.1 at 820mm
  - 1:3.4 at 17.2-680mm
  - 1:1.8 at 1640mm
- **Angular Field of View 16:9 (with Extender):**
  - 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
- **M.O.D.:** 3.0m
- **Size (W x H x L):** 250.6 x 255.5 x 610.0mm
- **Weight (approx.):** 51.1lbs (23.2kg)
- **Built-In Extender:** 2.0X

### DIGISUPER 80

- **Lens:** XJ80x8.8
- **Zoom Ratio/Format:** 80x
- **Range of Focal Length (with Extender):** 8.8-710mm (17.6-1420mm)
- **Maximum Relative Aperture (with Extender):**
  - 1:1.7 at 8.8-340mm
  - 1:3.5 at 710mm
  - 1:3.4 at 17.6-680mm
  - 1:1.7 at 1420mm
- **Angular Field of View 16:9 (with Extender):**
  - 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
- **M.O.D.:** 3.0m
- **Size (W x H x L):** 250.6 x 255.5 x 610mm
- **Weight (approx.):** 51.1lbs (23.2kg)
- **Built-In Extender:** 2.0X

### DIGISUPER 76

- **Lens:** XJ76x9B
- **Zoom Ratio/Format:** 76x
- **Range of Focal Length (with Extender):** 9.6-690mm (18-1380mm)
- **Maximum Relative Aperture (with Extender):**
  - 1:1.7 at 9.6-340mm
  - 1:3.4 at 690mm
  - 1:3.4 at 18-680mm
  - 1:1.6 at 1380mm
- **Angular Field of View 16:9 (with Extender):**
  - 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
- **M.O.D.:** 3.0m
- **Size (W x H x L):** 250.6 x 255.5 x 610mm
- **Weight (approx.):** 50.6lbs (23kg)
- **Built-In Extender:** 2.0X

### DIGISUPER 100AF

- **Lens:** XJ100x9.3B AF
- **Zoom Ratio/Format:** 100x
- **Range of Focal Length (with Extender):** 9.3-930mm (18.6-1860mm)
- **Maximum Relative Aperture (with Extender):**
  - 1:1.7 at 9.3-296mm
  - 1:4.7 at 930mm
  - 1:3.4 at 18.6-592mm
  - 1:1.9 at 1860mm
- **Angular Field of View 16:9 (with Extender):**
  - 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
- **M.O.D.:** 3.0m
- **Size (W x H x L):** 250.6 x 255.5 x 661.5mm
- **Weight (approx.):** 59.1lbs (26.8kg)
- **Built-In Extender:** 2.0X

### DIGISUPER 86AF

- **Lens:** XJ86x9.3B AF
- **Zoom Ratio/Format:** 86x
- **Range of Focal Length (with Extender):** 9.3-800mm (18.6-1600mm)
- **Maximum Relative Aperture (with Extender):**
  - 1:1.7 at 9.3-340mm
  - 1:4.0 at 800mm
  - 1:3.4 at 18.6-680mm
  - 1:1.8 at 1600mm
- **Angular Field of View 16:9 (with Extender):**
  - 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
- **M.O.D.:** 3.0m
- **Size (W x H x L):** 250.6 x 255.5 x 661.5mm
- **Weight (approx.):** 59.1lbs (26.8kg)
- **Built-In Extender:** 2.0X

### DIGISUPER 100xs

- **Lens:** XJ100x9.3B IE-D
- **Zoom Ratio/Format:** 100x
- **Range of Focal Length (with Extender):** 9.3-930mm (18.6-1860mm)
- **Maximum Relative Aperture (with Extender):**
  - 1:1.7 at 9.3-296mm
  - 1:4.7 at 930mm
  - 1:3.4 at 18.6-592mm
  - 1:1.9 at 1860mm
- **Angular Field of View 16:9 (with Extender):**
  - 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
- **M.O.D.:** 3.0m
- **Size (W x H x L):** 250.6 x 255.5 x 591.5mm
- **Weight (approx.):** 51.8lbs (23.5kg)
- **Built-In Extender:** 2.0X
### DIGISUPER 86II TELExs

<table>
<thead>
<tr>
<th>Lens</th>
<th>XJ86x13.5B IE-II-D TELE</th>
<th>XJ86x9.3B IE-II-D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoom Ratio/Format</td>
<td>86x</td>
<td>86x</td>
</tr>
<tr>
<td>Range of Focal Length (with Extender)</td>
<td>13.5-1161mm (27-2322mm)</td>
<td>9.3-800mm (18.6-1600mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:2.4 at 13.5-480mm (1:5.8 at 1161mm (1:4.8 at 27-960mm) (1:11.6 at 2322mm)</td>
<td>1:1.7 at 9.3-340mm (1:4.0 at 800mm (1:3.4 at 18.6-680mm) (1:8.0 at 1600mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>39.1° x 22.6° at 13.5mm (0.47° x 0.27° at 1161mm (0.24° x 0.13° at 2322mm)</td>
<td>54.6° x 32.4° at 9.3mm (0.69° x 0.39° at 800mm (0.34° x 0.19° at 1600mm)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>3.0m</td>
<td>3.0m</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>250.6 x 255.5 x 618.4mm</td>
<td>250.6 x 255.5 x 591.5mm</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>53.6lbs (24.3kg)</td>
<td>51.8lbs (23.5kg)</td>
</tr>
<tr>
<td>Built-In Extender</td>
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<td>2.0X</td>
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### DIGISUPER 86II xs

<table>
<thead>
<tr>
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<th>XJ86x9.3B IE-II-D</th>
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<tbody>
<tr>
<td>Zoom Ratio/Format</td>
<td>86x</td>
<td>86x</td>
</tr>
<tr>
<td>Range of Focal Length (with Extender)</td>
<td>13.5-1161mm (27-2322mm)</td>
<td>9.3-800mm (18.6-1600mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:2.4 at 13.5-480mm (1:5.8 at 1161mm (1:4.8 at 27-960mm) (1:11.6 at 2322mm)</td>
<td>1:1.7 at 9.3-340mm (1:4.0 at 800mm (1:3.4 at 18.6-680mm) (1:8.0 at 1600mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>39.1° x 22.6° at 13.5mm (0.47° x 0.27° at 1161mm (0.24° x 0.13° at 2322mm)</td>
<td>54.6° x 32.4° at 9.3mm (0.69° x 0.39° at 800mm (0.34° x 0.19° at 1600mm)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>3.0m</td>
<td>3.0m</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>250.6 x 255.5 x 618.4mm</td>
<td>250.6 x 255.5 x 591.5mm</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>53.6lbs (24.3kg)</td>
<td>51.8lbs (23.5kg)</td>
</tr>
<tr>
<td>Built-In Extender</td>
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### DIGISUPER 60xs

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<tr>
<th>Lens</th>
<th>XJ60x9B IE-D</th>
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<tbody>
<tr>
<td>Zoom Ratio/Format</td>
<td>60x</td>
</tr>
<tr>
<td>Range of Focal Length (with Extender)</td>
<td>9.3-540mm (18-1080mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:1.7 at 9-306mm (1:3.0 at 540mm (1:3.4 at 18-612mm) (1:6.0 at 1080mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>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)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>2.8m</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>250.6 x 255.5 x 547.8mm</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>43.8lbs (19.9kg)</td>
</tr>
<tr>
<td>Built-In Extender</td>
<td>2.0X</td>
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### DIGISUPER 75xs

<table>
<thead>
<tr>
<th>Lens</th>
<th>XJ75x9.3B IE-D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoom Ratio/Format</td>
<td>75x</td>
</tr>
<tr>
<td>Range of Focal Length (with Extender)</td>
<td>9.3-700mm (18.6-1400mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:1.7 at 9.3-331mm (1:3.6 at 700mm (1:3.4 at 18.6-662mm) (1:17.2 at 1400mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>54.6° x 32.4° at 9.3mm (0.79° x 0.44° at 700mm (28.9° x 16.5° at 18.6mm (0.39° x 0.22° at 1400mm)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>2.8m</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>250.6 x 255.5 x 591.5mm</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>48.5lbs (22.0kg)</td>
</tr>
<tr>
<td>Built-In Extender</td>
<td>2.0X</td>
</tr>
</tbody>
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### DIGISUPER 72xs

<table>
<thead>
<tr>
<th>Lens</th>
<th>XJ72x9.3B IE-D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoom Ratio/Format</td>
<td>72x</td>
</tr>
<tr>
<td>Range of Focal Length (with Extender)</td>
<td>9.3—675mm (18.6—1350mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:1.7 at 9.3-333mm (1:3.45 at 675mm (1:3.4 at 18.6-666mm) (1:6.9 at 1350mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>54.6° x 32.4° at 9.3mm (0.81° x 0.46° at 675mm (28.9° x 16.5° at 18.6mm (0.41° x 0.23° at 1350mm)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>2.8m</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>250.6 x 255.5 x 591.5mm</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>48.1lbs (21.8kg)</td>
</tr>
<tr>
<td>Built-In Extender</td>
<td>2.0X</td>
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### DIGISUPER 27AF

<table>
<thead>
<tr>
<th>Lens</th>
<th>XJ27x6.5B AF</th>
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</thead>
<tbody>
<tr>
<td>Zoom Ratio/Format</td>
<td>27X</td>
</tr>
<tr>
<td>Range of Focal Length (with Extender)</td>
<td>6.5-180mm (13-360mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:1.5 at 6.5-123mm (1:2.2 at 180mm (1:3.0 at 13-246mm) (1:4.4 at 360mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>72.9° x 45.1° at 6.5mm (3.1° x 1.7° at 180mm (40.5° x 23.5° at 13mm (1.5° x 0.9° at 360mm)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>0.6m (10mm w/Macro)</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>250.6 x 255 x 567mm</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>51.4lbs (23.3kg)</td>
</tr>
<tr>
<td>Built-In Extender</td>
<td>2.0X</td>
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</table>

* Please see page 39 for explanation of Shift-IS image stabilizer.
### DIGISUPER 27

<table>
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<tr>
<th>Lens</th>
<th>XJ27x6.5B</th>
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<tbody>
<tr>
<td>Zoom Ratio/Format</td>
<td>27X</td>
</tr>
<tr>
<td>Range of Focal Length (with Extender)</td>
<td>6.5-180mm (13-360mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:1.5 at 6.5-123mm (1:2.2 at 180mm (1:3.0 at 13-246mm (1:4.4 at 360mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>77.9° x 45.1° at 6.5mm (31.1° x 1.7° at 180mm (40.5° x 23.5° at 13mm (1.5° x 0.9° at 360mm)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>0.6m (10mm w/Macro)</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>250.6 x 255.5 x 550mm</td>
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<tr>
<td>Weight (approx.)</td>
<td>48.3lbs (21.9kg)</td>
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<tr>
<td>Built-In Extender</td>
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### DIGISUPER 23xs

<table>
<thead>
<tr>
<th>Lens</th>
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<tbody>
<tr>
<td>Zoom Ratio/Format</td>
<td>23X</td>
</tr>
<tr>
<td>Range of Focal Length (with Extender)</td>
<td>7-161mm (14-322mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:1.6 at 7-132mm (1:1.95 at 161mm (1:3.2 at 14-223mm (1:3.9 at 322mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>68.8° x 42.1° at 7mm (3.4° x 1.9° at 161mm (37.8° x 21.8° at 14mm (1.7° x 1.0° at 322mm)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>0.6m (10mm w/Macro)</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>250.6 x 255.5 x 525mm</td>
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<tr>
<td>Weight (approx.)</td>
<td>42.5lbs (19.5kg)</td>
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<tr>
<td>Built-In Extender</td>
<td>2.0X</td>
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### DIGISUPER 22xs

<table>
<thead>
<tr>
<th>Lens</th>
<th>XJ22x7.3B IE-D</th>
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<tbody>
<tr>
<td>Zoom Ratio/Format</td>
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<tr>
<td>Range of Focal Length (with Extender)</td>
<td>7.3-161mm (14.6-322mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:1.8 at 7.3-111.5mm (1:2.6 at 161mm (1:3.6 at 14.6-223mm (1:5.2 at 322mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>66.7° x 40.6° at 7.3mm (3.4° x 1.9° at 161mm (36.4° x 21.0° at 14.6mm (1.7° x 1.0° at 322mm)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>0.8m (10mm w/Macro)</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>165 x 175 x 336mm</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>13.4lbs (6.1kg)</td>
</tr>
<tr>
<td>Built-In Extender</td>
<td>2.0X</td>
</tr>
</tbody>
</table>

### Compact Studio Lens For Portable Cameras.

### Production Platform 2*

#### HDgc 2/3” ENG/EFP Zoom Lenses

<table>
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<tr>
<th>Lens</th>
<th>KJ22ex7.6B IR S E/ASE</th>
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<tbody>
<tr>
<td>Zoom Ratio/Format</td>
<td>22x</td>
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<tr>
<td>Range of Focal Length (with Extender)</td>
<td>7.6-168mm (15.2-336mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>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)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>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)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>0.8m (10mm w/Macro)</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>164.7 x 112.1 x 218.6mm</td>
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<tr>
<td>Weight (approx.)</td>
<td>4.0lbs (1.82kg)</td>
</tr>
<tr>
<td>Built-In Extender</td>
<td>2.0X</td>
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</tbody>
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* please refer to Production Platform chart on page 2
### HDgc 1/2” ENG/EFP Zoom Lenses

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<td><strong>Zoom Ratio/Format</strong></td>
<td>21x</td>
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<tr>
<td><strong>Range of Focal Length</strong></td>
<td>5.7 – 120mm</td>
</tr>
<tr>
<td></td>
<td>(11.4 - 240mm)</td>
</tr>
<tr>
<td><strong>Maximum Relative Aperture</strong></td>
<td>1:1.4 at 5.7 – 86mm</td>
</tr>
<tr>
<td></td>
<td>1:1.95 at 120mm</td>
</tr>
<tr>
<td></td>
<td>(1:2.8 at 11.4 - 172mm)</td>
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<tr>
<td></td>
<td>(1:3.9 at 240mm)</td>
</tr>
<tr>
<td><strong>Angular Field of View 16:9</strong></td>
<td>62.9° x 38.0° at 5.7mm</td>
</tr>
<tr>
<td></td>
<td>3.3° x 1.9° at 120mm</td>
</tr>
<tr>
<td></td>
<td>(34.0° x 19.5 at 11.4mm)</td>
</tr>
<tr>
<td></td>
<td>(1.7° x 0.9° at 240mm)</td>
</tr>
<tr>
<td><strong>M.O.D.</strong></td>
<td>0.8m (10mm w/Macro)</td>
</tr>
<tr>
<td><strong>Size (W x H x L)</strong></td>
<td>169.4 x 111.9 x 217.5 mm</td>
</tr>
<tr>
<td><strong>Weight (approx.)</strong></td>
<td>3.95lbs (1.79kg)</td>
</tr>
<tr>
<td><strong>Built-in Extender</strong></td>
<td>2.0X</td>
</tr>
</tbody>
</table>

### HDgc 1/3” ENG/EFP Zoom Lenses

<table>
<thead>
<tr>
<th>Lens</th>
<th>KH16ex5.7 IRSE A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Zoom Ratio/Format</strong></td>
<td>16x</td>
</tr>
<tr>
<td><strong>Range of Focal Length</strong></td>
<td>5.7 - 92mm</td>
</tr>
<tr>
<td></td>
<td>(11.4-184mm)</td>
</tr>
<tr>
<td><strong>Maximum Relative Aperture</strong></td>
<td>1 : 1.4 at 5.7 - 71.6mm</td>
</tr>
<tr>
<td></td>
<td>1 : 1.8 at 92mm</td>
</tr>
<tr>
<td></td>
<td>(1 : 2.8 at 11.4 - 143.1mm)</td>
</tr>
<tr>
<td></td>
<td>(1.3.6 at 184mm)</td>
</tr>
<tr>
<td><strong>Angular Field of View 16:9</strong></td>
<td>62.9° x 38.0° at 5.7mm</td>
</tr>
<tr>
<td></td>
<td>3.3° x 1.9° at 92mm</td>
</tr>
<tr>
<td></td>
<td>(34.0° x 19.5° at 11.4mm)</td>
</tr>
<tr>
<td></td>
<td>(2.1° x 1.2° at 184mm)</td>
</tr>
<tr>
<td><strong>M.O.D.</strong></td>
<td>0.6m (10mm w/Macro)</td>
</tr>
<tr>
<td><strong>Size (W x H x L)</strong></td>
<td>163.9 x 106.3 x 196.7 mm</td>
</tr>
<tr>
<td><strong>Weight (approx.)</strong></td>
<td>3.24lbs (1.47kg)</td>
</tr>
<tr>
<td><strong>Built-in Extender</strong></td>
<td>2.0X</td>
</tr>
</tbody>
</table>
### HDgc 2/3” ENG/EFP Zoom Lenses

<table>
<thead>
<tr>
<th>Lens</th>
<th>KJ20x8.2B IRSD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Zoom Ratio/Format</strong></td>
<td>20X</td>
</tr>
<tr>
<td><strong>Range of Focal Length</strong></td>
<td>8.2-164mm (16.4-328mm)</td>
</tr>
<tr>
<td><strong>Maximum Relative Aperture</strong></td>
<td>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)</td>
</tr>
<tr>
<td><strong>Angular Field of View 16:9</strong></td>
<td>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)</td>
</tr>
<tr>
<td><strong>M.O.D.</strong></td>
<td>0.9m (10mm w/Macro)</td>
</tr>
<tr>
<td><strong>Size (W x H x L)</strong></td>
<td>163.3 x 103.0 x 208.0mm</td>
</tr>
<tr>
<td><strong>Weight (approx.)</strong></td>
<td>3.131lbs (1.42kg)</td>
</tr>
</tbody>
</table>

### HDgc 1/2” ENG/EFP Zoom Lenses

<table>
<thead>
<tr>
<th>Lens</th>
<th>KH20x6.4 KRSD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Zoom Ratio/Format</strong></td>
<td>20X</td>
</tr>
<tr>
<td><strong>Range of Focal Length</strong></td>
<td>6.4 – 128mm</td>
</tr>
<tr>
<td><strong>Maximum Relative Aperture</strong></td>
<td>1:1.4 at 6.4 – 89.6mm, 1:2.0 at 128mm</td>
</tr>
<tr>
<td><strong>Angular Field of View 16:9</strong></td>
<td>57.1° x 34.1° at 6.4mm, 3.1° x 1.8° at 128mm</td>
</tr>
<tr>
<td><strong>M.O.D.</strong></td>
<td>0.9m (10mm w/Macro)</td>
</tr>
<tr>
<td><strong>Size (W x H x L)</strong></td>
<td>163.3 x 103 x 182.5mm</td>
</tr>
<tr>
<td><strong>Weight (approx.)</strong></td>
<td>2.6lbs (1.27kg)</td>
</tr>
</tbody>
</table>

### HDgc 1/3” ENG/EFP Zoom Lenses

<table>
<thead>
<tr>
<th>Lens</th>
<th>KJ20x8.5B KRSD A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Zoom Ratio/Format</strong></td>
<td>20X</td>
</tr>
<tr>
<td><strong>Range of Focal Length</strong></td>
<td>8.5 – 170mm</td>
</tr>
<tr>
<td><strong>Maximum Relative Aperture</strong></td>
<td>1:1.8 at 8.5 – 113.3mm, 1:2.7 at 170mm</td>
</tr>
<tr>
<td><strong>Angular Field of View 16:9</strong></td>
<td>58.9° x 35.2° at 8.5mm, 3.2° x 1.8° at 170mm</td>
</tr>
<tr>
<td><strong>M.O.D.</strong></td>
<td>0.9m (10mm w/Macro)</td>
</tr>
<tr>
<td><strong>Size (W x H x L)</strong></td>
<td>163.3 x 103 x 170.4mm</td>
</tr>
<tr>
<td><strong>Weight (approx.)</strong></td>
<td>2.8lbs (1.27kg)</td>
</tr>
</tbody>
</table>

### HDgc 1/3” ENG/EFP Zoom Lenses

<table>
<thead>
<tr>
<th>Lens</th>
<th>KT20x5B KRSD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Zoom Ratio/Format</strong></td>
<td>20X</td>
</tr>
<tr>
<td><strong>Range of Focal Length</strong></td>
<td>5-100mm</td>
</tr>
<tr>
<td><strong>Maximum Relative Aperture</strong></td>
<td>1:1.4 at 5.0-90.3mm, 1:1.55 at 100mm</td>
</tr>
<tr>
<td><strong>Angular Field of View 16:9</strong></td>
<td>55.2° x 32.8° at 5mm, 3.0° x 1.7° at 100mm</td>
</tr>
<tr>
<td><strong>M.O.D.</strong></td>
<td>0.9m (10mm w/Macro)</td>
</tr>
<tr>
<td><strong>Size (W x H x L)</strong></td>
<td>163.3 x 103 x 171.2mm</td>
</tr>
<tr>
<td><strong>Weight (approx.)</strong></td>
<td>2.62lbs (1.19kg)</td>
</tr>
</tbody>
</table>

* please refer to Production Platform chart on page 2
**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.

**Wide Converter**

- Focal length becomes wider by a factor of 0.8X that of the original lens with W80 HD
- F No. of the original lens is not affected

**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

**Fish-Eye Attachment**

- Example: HJ17ex7.6B with fish-eye attachment
  - Focal Length: 4.6mm, fixed focal length
  - Zooming: Not possible
  - Focus adjustment: By Macro mechanism

**SDTV Optical Accessories**

<table>
<thead>
<tr>
<th>Combination</th>
<th>M.O.D.</th>
<th>Eclipse Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>J17ex7.7B + T15-II/85II</td>
<td>1.35m</td>
<td>f : 60mm</td>
</tr>
<tr>
<td>J22ex7.6B + T15-II/98II</td>
<td>1.8m</td>
<td>f : 60mm</td>
</tr>
<tr>
<td>YJ20x8.5B + T15-II/85II</td>
<td>2.00m</td>
<td>f : 80mm</td>
</tr>
</tbody>
</table>

**HDTV Optical Accessories**

<table>
<thead>
<tr>
<th>Combination</th>
<th>Master Lens</th>
<th>With Wide Converter Attached</th>
</tr>
</thead>
<tbody>
<tr>
<td>J17ex7.7B + W80-IIIB/85II</td>
<td>7.7 to 131mm</td>
<td>6.2 to 104.8mm</td>
</tr>
<tr>
<td>J22ex7.6B + W80-IIIB /98II</td>
<td>7.6 to 168mm</td>
<td>6.0 to 132mm</td>
</tr>
<tr>
<td>YJ20x8.5B + W80Y-85</td>
<td>9 to 171mm</td>
<td>7.2 to 136.8mm</td>
</tr>
</tbody>
</table>

| Focal Length                  | 0.8X       |
| Minimum Object Distance      | (Magnification)^2 X |
| Focusing                     | Usual operation|
| F-number                     | Same as usual|

*W80Y-85 is exclusively for 20X and 19X series and does not require an adapter.*
**ENG Zoom And Focus Accessories**

For Digital and Analog ENG/EFP Lenses

<table>
<thead>
<tr>
<th>Description</th>
<th>Model Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Zoom Servo Demand</td>
<td>ZSD-300D</td>
</tr>
</tbody>
</table>

**Model Name Description**

- **ZSD-300D**
- **FFM-100**
- **FC-40**
- **FFC-200**
- **FPM-420D**
- **FPD-400D**

### Wireless Lens Control System

**System Configuration**

* For a complete list of all accessories, please contact a CANON sales office.

---

**Wireless Lens Control Kit**

A. **FPD-400D** – Focus Demand
B. **ZSD-300D** – Zoom Demand
C. **CR-10** – Clamper (Included with A and B)

---

**SS-41-IASD for use with Compact Studio Kit or ENG lens**

- **A. FPD-400D** – Focus Demand
- **B. ZSD-300D** – Zoom Demand
- **C. CR-10** – Clamper (Included with A and B)

---

**MS-210D**

- **A. FC-40** – Flexible Cable 32
- **B. ZSD-300D** – Zoom Demand
- **C. CR-10** – Clamper (Included with B and E)
- **D. FFM-100** – Flex Focus Module
- **E. FFC-200** – Flex Focus Controller

---

**MS-22M**

- **A. FC-40** – Flexible Cable 32
- **B. FFC-200** – Flex Focus Controller
- **C. ZSG-200M** – Zoom Grip
- **D. EC-80** – Extension Cable
- **E. FM-12** – Flexible Focus Module
- **F. CR-10** – Clamper (Included with E)

---

**MS-15M**

- **A. FC-40** – Flexible Cable 32
- **B. ZSD-15M II** – Zoom Demand
- **C. FFC-15** – Flex Focus Controller
- **D. CR-10** – Clamper (Included with B)
- **E. FM-12** – Flexible Focus Module

---

**MS-15M**

- **A. FC-40** – Flexible Cable 32
- **B. ZSD-15M II** – Zoom Demand
- **C. FFC-15** – Flex Focus Controller
- **D. CR-10** – Clamper (Included with B)
- **E. FM-12** – Flexible Focus Module

---

**Wireless Lens Control Kit**

A. **FPD-400D** – Focus Demand
B. **ZSD-300D** – Zoom Demand
C. **CR-10** – Clamper (Included with A and B)
D. **WB-10T** – Transmitter Box
E. **WB-10R** – Receiver Box

*Only for use with IASE or IASD Lenses.*

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**FPM-420D**

Focus Positional Servo Module for use with IRSE lenses

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**FFM-100**

Flex Focus Module for use with Semi Servo controls.

---

*1 DC power supply for the WB-10T to be prepared by User. Size AA battery (x2pcs) is also available.

*2 The Clamper and the Belt for the attachment are included as a standard component in the WB-10R.
**DIGI Zoom Demand**

- Servo Zoom Control with Manual Style Handle
  - Servo Cable
  - ZDJ-P21 – Zoom Servo Controller
  - CR-30 – Clamper

**AF Servo Focus**

- CR-30 – Clamper
- FDJ-P41 – Focus Demand AF
- Servo Cable

**DIGI Focus Control**

An innovative servo focus demand with the precise movement of a manual control

- CR-30 – Clamper
- FDJ-D22 – Focus Demand
- Servo Cable

**Battery Adapter Plate**

For Use With SUP-NS3.
Recommended to use when a box lens is mounted on a supporter

- ZD J-P21 – Zoom Servo Controller
- CR-30 – Clamper
- FDJ-P01 – Focus Demand
- Servo Cable

**SMJ-D02 Servo Module**

Digi Servo Module for Zoom and Focus. For use with XJ72x, 75x, 86IIx, 86IIx TELE, 100x lens

**SMJ-E01 Servo Module**

For use with XJ23x, 27x, 27xAF 60x, 76x, 80x, 86xAF, 95x and 100xAF lens

**SUP-NS3 Supporter**

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

HDxs Lens Series
- HJ18ex28B ITS-RE/ME
- HJ17ex7.6B ITS-RE/ME
- HJ22ex7.6B ITS-RE/ME
- HJ14ex4.3B ITS-RE/ME

HDgc Lens Series
- KJ20x8.5B KTS (2/3”)
- KH20x6.4 KTS (1/2”)
- KJ13x6B KTS (2/3”)
- KT20x5B KTS (1/3”)
- KH13x4.5 KTS (1/2”)

Remote Control Systems
Canon proudly offers several IFpro remote control lenses designed to offer remote zoom, focus and iris control. The YJ20x8.5B KTS and YJ13x6B KTS models are both for 2/3” SDTV cameras. Also, for 2/3” cameras, there is the YJ20x8.5 ITS-RE with built-in motorized 2X extender. A full line of remote control accessories are also available.

For 2/3” Cameras
- YJ20x8.5 KTS
- YJ13x6B KTS

Remote Control Systems
Canon supports the HDxs, HDGC, IFxs and IFpro Remote Control Systems with a variety of lenses and accessories.

Hood
Close-Up Lens
- 82CL-UP 800H
- 82CL-UP 1300H
- 105CL-UP 900H
- 105CL-UP 800HD

005M
010M
TCC-020M
050M
100M
TCR-201F
TCR-101F
TCR-301F
External Extender Control Unit

RE: motorized 2X extender  ME: manual 2X extender

Remote Control Accessories
Four types (82CL-UP800H / 82CL-UP1300H / 105CL-UP900H / 105CL-UP800HD) are available.
(Not available for HJ18ex / HJ14ex)

Remote Controller
Several models are available.
*The controllers are also applicable to remote control pro-video lenses.

Connecting Cable
5m, 10m, 20m, 50m and 100m cables are available.
Maximum cable connection is 150m.

How the Optical Image Stabilizer (Shift-IS) Works.
When the lens moves, the light rays from the subject are bent relative to the optical axis, resulting in an unsteady image because the light rays are deflected. By shifting the IS lens group on a plane perpendicular to the optical axis to counter the degree of image shake, the light rays reaching the image plane can be steadied. Since image shaking 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. Then, the actuator 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 groups and is most effective for lower frequency movements caused by platform vibration or wind effect without increasing the overall size and weight of the master lens.

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:

<table>
<thead>
<tr>
<th>Converter</th>
<th>Lens</th>
<th>Camera</th>
<th>Shift Ratio to Telephoto Side</th>
<th>Electronic Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO-32BMT</td>
<td>2/3” B4 Mount</td>
<td>1/2” SONY</td>
<td>APPROX. 1.4X</td>
<td>——</td>
</tr>
<tr>
<td>LCV-40B</td>
<td>2/3” B4 Mount</td>
<td>1/2” STANDARD MOUNT</td>
<td>APPROX. 1.4X</td>
<td>——</td>
</tr>
<tr>
<td>LCV-42T</td>
<td>2/3” B4 Mount</td>
<td>1/3” STANDARD MOUNT</td>
<td>APPROX. 1.8X</td>
<td>——</td>
</tr>
<tr>
<td>LCV-41E</td>
<td>2/3” B4 Mount</td>
<td>SONY PMW-EX3</td>
<td>APPROX. 1.4X</td>
<td>LENS CABLE (12PIN)→EX3 HOT SHOE (14PIN)</td>
</tr>
<tr>
<td>LCV-20E</td>
<td>1/2”</td>
<td>SONY PMW-EX3</td>
<td>——</td>
<td>LENS CABLE (12PIN)→EX3 HOT SHOE (14PIN)</td>
</tr>
</tbody>
</table>

*1 SONY’s Hot Shoe mount camera, excluding PMW-EX3
*2 1/2” Camera of standard type mount (Panasonic, JVC, Ikegami)
*3 Only applicable to KH10ex / KH16ex / KH21ex

The other 1/2” mount lenses are not available

Note: The converters are to be used with lenses weighing less than 4.4lbs (2.0kg)

NEW DIGISUPER 80
NEW DIGISUPER 95
DIGISUPER 100AF
DIGISUPER 100xs
DIGISUPER 86AF
DIGISUPER 86IIxs
DIGISUPER 86II TELEExs
DIGISUPER 75xs
HJ40x Series

Both the New DIGISUPER 95 and DIGISUPER 80 lenses come equipped with the latest version of Canon’s Shift-IS Image Stabilization technology. This new IS system design reflects experiences gained worldwide over the past decade that led to deployment of a totally new sensing system, new correction algorithm, and higher-speed control loop. The new system extends the frequency range of correction ensuring high image stability under a wide variety of real-world perturbations and vibrations encountered in all forms of outside broadcast coverage. The new algorithm can instantly separate operational panning and tilting movements from unwanted physical disturbances.
The Canobeam DT-150 HD provides reliable uncompressed two-way, high-bandwidth (HD-SDI and SD-SDI) digital video transmission for situations where fiber-optic cables or microwave links are impractical or impossible. The Canobeam DT-150 HD operates at 1.5 Gbps and transmits digital HD/SD video, audio, and control signals bi-directionally without delay via line-of-sight Free Space Optics at a distance of up to 1 kilometer.

- The Canobeam DT-150 HD can relay HD-SDI and SD-SDI video, along with embedded return video and audio to the camera operator, as well as camera-control signals, and robotic camera-control data.
- Canon’s exclusive Auto Tracking feature—standard on all Canobeam systems—maintains precise beam alignment despite vibrations due to wind, heavy vehicle traffic, or unsteady camera platforms.
- Small Form Pluggable fiber interface. (Connector: LC)
- Can interface with either simple media converters for one-way/two-way video transmission or SMPTE hybrid cable emulation boxes.
- Housing designed for outdoor or indoor installations.
- Offers management capability via SNMP.
- The Canobeam DT-150 HD’s Free Space Optics technology uses a beam of infrared light, which doesn’t require RF licenses or coordination, and is virtually free from interception.
- Sets up quickly and is simple to operate.

### Pro-Video Lenses

**For 2/3” Pro-Video**

<table>
<thead>
<tr>
<th>Lens Type</th>
<th>YJ20x8.5B KRS</th>
<th>YJ20x8.5B IRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoom Ratio/Format</td>
<td>20x</td>
<td>20x</td>
</tr>
<tr>
<td>Range of Focal Length (with Extender)</td>
<td>8.5-170mm</td>
<td>8.5-170mm (17-340mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:1.8 at 8.5-113.3mm, 1:2.7 at 170mm</td>
<td>1:1.8 at 8.5-113.3mm, 1:2.7 at 170mm (1:3.6 at 17-226.7mm, 1:5.4 at 340mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>58.8”x35.2” at 8.5mm, 3.2”x1.8” at 170mm</td>
<td>58.8”x35.2” at 8.5mm, 3.2”x1.8” at 170mm (31.5”x18.0” at 17mm, 1.6”x0.9” at 340mm)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>0.9m(10mm w/Macro)</td>
<td>0.9m(10mm w/Macro)</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>163.3x103.4x170.4mm</td>
<td>163.3x103.0x195.4mm</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>2.58lbs (1.17kg)</td>
<td>3.06lbs (1.39kg)</td>
</tr>
<tr>
<td>Built-In Extender</td>
<td>———</td>
<td>2.0X</td>
</tr>
</tbody>
</table>

### Wide Angle Quality For 2/3” Pro-Video

<table>
<thead>
<tr>
<th>Lens Type</th>
<th>YJ13x6B KRS</th>
<th>YJ13x6B IRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoom Ratio/Format</td>
<td>13X</td>
<td>13X</td>
</tr>
<tr>
<td>Range of Focal Length (with Extender)</td>
<td>6-78mm</td>
<td>6-78mm (12-156mm)</td>
</tr>
<tr>
<td>Maximum Relative Aperture (with Extender)</td>
<td>1:2.0 at 6-58mm, 1:2.7 at 78mm</td>
<td>1:2.0 at 6-58mm, 1:2.7 at 78mm (1:4.0 at 12-116mm, 1:5.4 at 156mm)</td>
</tr>
<tr>
<td>Angular Field of View 16:9 (with Extender)</td>
<td>77.2’ x 48.4” at 6mm, 7.0” x 4.0” at 78mm</td>
<td>77.2’ x 48.4” at 6mm, 7.0” x 4.0” at 78mm (43.6” x 25.3” at 12mm, 3.5” x 2.0” at 156mm)</td>
</tr>
<tr>
<td>M.O.D.</td>
<td>0.4m(10mm w/Macro)</td>
<td>0.4m(10mm w/Macro)</td>
</tr>
<tr>
<td>Size (W x H x L)</td>
<td>165.4x105.1x211.7mm</td>
<td>165.4x105.1x234.8mm</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>3.39lbs (1.54kg)</td>
<td>3.83lbs (1.74kg)</td>
</tr>
<tr>
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</table>
**United States**

**Northeast Region**

65 Challenger Road
Ridgefield Park, NJ 07660

Sales: (201)-807-3300
Fax: (201) 807-3333

- Rich Eilers
  reilers@cusa.canon.com
- John Rose
  jrosejr@cusa.canon.com
- Patrick Breheny
  pbreheny@cusa.canon.com
- David Boyer
  dboyer@cusa.canon.com

**Southeast Region**

5625 Oakbrook Parkway
Norcross, GA 30093

Sales: (770) 849-7890
Fax: (770) 849-7888

- Jim Dobbins
  jdobbins@cusa.canon.com
- Mark Karwisch
  mkarwisch@cusa.canon.com
- David Bare
  dbare@cusa.canon.com

**Southwest Region**

3200 Regent Boulevard
Irving, TX 75063

Sales: (972) 409-8871
Fax: (972) 409-8869

- Mark Parks
  mparks@cusa.canon.com
- Bill Dambrova
  bdambrova@cusa.canon.com
- Tom Bundy
  tbundy@cusa.canon.com

**Latin America**

**Canon USA, Inc. - Florida**

2860 NW 75 Avenue
Margate, FL 33063

Sales: (954) 757-0980
Fax: (954) 757-0980

- Jose Alvarado
  jalvarado@cusa.canon.com

**Canada**

**Canon Canada, Inc.**

6390 Dixie Road
Mississauga, Ontario L5T 1P7

Sales: (905) 795-2164
Fax: (905) 795-2140

- Carlo Beltrano
  cbeltrano@canada.canon.com

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**Midwest Region**

100 Park Boulevard
Itasca, IL 60143

Sales: (630) 250-6236
Fax: (630) 250-0399

- David Pavlik
  dpavlik@cusa.canon.com
- Mick Edmundson
  medmundson@cusa.canon.com
- Stephen Olson
  solson@cusa.canon.com

**West Region**

15955 Alton Parkway
Irvine, CA 92618

Sales: (949) 753-4330
Fax: (949) 753-4337

- Thomas Bender
  tbender@cusa.canon.com
- Joseph Patton
  jpatton@cusa.canon.com
- Stephanie Franz
  sfranz@cusa.canon.com
- Scott Daniels
  sdaniels@cusa.canon.com
- Kevin Kozlowski
  kkozlowski@cusa.canon.com
- Patrick Birch
  pbirch@cusa.canon.com

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