

# Canon Compact Servo Zooms

Compact Servo Zoom CN-E70-200mm T4.4 L IS KAS S  
 Range / Aperture 70-200 mm T4.4  
 Mount EF  
 MOD 4' / 1.2 m  
 Image Format Super 35  
 Image Circle 31.4 mm  
 Iris 9 blades  
 Weight 2.76 lb / 1.25 kg  
 Length 7.2 in / 182.3 mm  
 Front Diameter 84 mm  
 No ramping of aperture when zooming



Compact Servo Zoom CN-E18-80mm T4.4 L IS KAS S  
 Range / Aperture 18-80 mm T4.4  
 Mount EF  
 MOD 1.7' / 0.5 m  
 Image Format Super 35  
 Image Circle 31.4 mm  
 Iris 9 blades  
 Weight 2.65 lb / 1.2 kg  
 Length 7.2 in / 182.3 mm  
 Front Diameter 84 mm  
 No ramping of aperture when zooming



Both 18-80 and 70-200 can use the ZSG-C10 accessory servo handgrip that attaches directly to the lens



## New Canon 70-200 Zoom: EF, AF, AE, IS



Exactly a year ago at NAB 2016, Canon introduced a new cine lens for Super 35. The Compact Servo 18-80 mm T4.4 (CN-E18-80mm T4.4 L IS KAS) EF-mount zoom was a compelling hybrid that combined the best attributes of cine and still photography. Three different lines of Canon lenses intersect in the design: more than 60 L-Series EF lenses for professional still photography, Cinema Zooms with manual focus/iris/zoom barrels (15.5-47, 30-105, 14.5-60, 30-300 mm), and Cine-Servo (17-120, 50-1000 mm) zooms.

Now, a year later at NAB 2017, the Compact Servo family gets a new sibling. The Canon 70-200 mm T4.4 (CN-E70-200mm T4.4 L IS KAS S) EF-mount zoom covers longer, essential focal lengths. And so, with just two lightweight, compact, affordable, high performance lenses, you can cover any angle from wide 18 mm to long 200 mm. An accessory 2x extender gets you to 400 mm.

There are many virtues that we'll get to in a minute. But the most exciting function is one rarely seen in cine lenses: really good optical IS — image stabilization. If you've ever used Canon's superb IS binoculars while bouncing around in a boat, the benefits are clear. Helicopter and camera car shots become gracefully smooth. On a windy day, shooting from a remote head is...ahem...a breeze. When there's no time to lay track and panic mode prevails, dolly shots on bumpy floors appear steady. Handheld shots can be done smoothly at longer focal lengths. Surely more stabilized cine lenses will follow.

In the still photo world, image stabilization is often quantified by how much exposure you might have gained. In other words, with IS enabled, the equivalent of a 3-stop gain means the image now looks steady at 1/30 second where it would have otherwise required a 1/250 second exposure to be sharp. For cinematography, since we're usually shooting at the equivalent of 1/48 second, Canon's new Compact Servo zooms might be quantified by how much tighter you can zoom in with IS enabled and still remain rock steady.

And that's the big deal with the new 70-200 mm zoom. Close-ups and telephoto shots that would otherwise have looked annoyingly shaky are now wonderfully stable. There's a switch with three settings. A is for standard handheld. B engages a more vigorous correction for shake and is good when handheld from moving vehicles. C is for tripod shooting where you don't want the image to drift when your pan comes to a stop.

Like the 18-80, Canon's new 70-200 comes with EF mount only. Auto Focus and Auto Iris work nicely on Canon Cinema EOS C700, C300 Mark II and C100 Mark II cameras. A small housing on the right side contains lens motors, controls, connectors and a small zoom rocker switch. The motors can be switched on for auto or remote operation or switched off for manual control. This module remains on the lens. You don't have to remove it, recalibrate or worry about gears not meshing. An optional servo handgrip can be used interchangeably with both Compact Servo zoom lenses. It attaches to the control module with one screw using an industry standard rosette and can also be used with a handgrip extension arm.

It's no secret that a lot of Canon Cinema EOS users are working with EF mount still lenses because of the variety, availability and affordability. The new Canon Compact Servo lenses have all that—as well as geared lens barrels, a 130° focus barrel, smooth parfocal manual/auto zoom, manual/auto iris, and image stabilization. Price for the 18-80 is now around \$5,225 and the 70-200 price is expected to be announced at NAB. The ZSG-C10 accessory handgrip is about \$474.

[www.usa.canon.com](http://www.usa.canon.com)

NAB Booth C4325





# New Canon 70-200 Compact Servo Zoom

Right side, front



Canon Compact Servo 70-200 mm T4.4  
(CN-E70-200mm T4.4 L IS KAS S)  
EF-mount zoom



ZSG-C10 accessory  
handgrip attached



Right side, rear



Left side



## Canon 70-200 T4.4 Zoom, cont'd



At left: Compact Servo 70-200 Zoom on an EOS C300 Mark II without accessory handgrip.

Control module houses a DC servo motor for zoom, ring USM motor for focus, and EMD motor for iris. Each of these motors can be disengaged for manual control.

The zoom can be controlled by the small, onboard rocker switch, remotely via the 20-pin Hirose connector, or manually.

Industry-standard rosette to attach accessory handgrip. Handgrip can also be attached to an extension arm or a rosette on the lens rods.

Small rocker control for servo zoom



ZSG-C10 accessory handgrip attaches directly to the rosette on the zoom lens

Handgrip cable plugs into 20-pin Hirose on lens

Zoom rocker control in ZSG-C10 handgrip



## Canon 70-200 T4.4 Zoom, cont'd



### Summary of Canon Compact Servo Features

- Same focus-iris-zoom gear positions on 18-80 and 70-200.
- Parfocal design: focus is maintained throughout the entire zoom range. Common still lenses have to be refocused at each focal length.
- No ramping: aperture remains constant throughout the entire zoom range. Maximum aperture of T4.4 is maintained from 70 to 200 mm.
- Minimal breathing: image remains constant when focusing—lens does not appear to zoom when rotating focus barrel from close to far.
- 70-200 works with optional Canon EF 1.4XIII and EF 2X Extenders.
- Color matches rest of Canon Cinema Lens line.
- Excellent optical image quality consistent with Canon's 4K standards.
- 9-blade iris, clickless from T4.4-T22 and fully closed position.
- Optional ZSG-C10 Zoom Servo Grip works on both zooms.
- Connects with cine and broadcast style lens controls.
- Compact (7.17" long) and light (18-80=2.65 lb; 70-200=2.76 lb).
- Canon Cinema EOS Cameras, especially C700 and C300 Mark II work seamlessly with these zooms: providing Continuous AF, One-Shot AF, Assisted Focus, Focus Guides and Face Detection.
- Dual Pixel Auto Focus supported with C700 and C300 Mark II.
- Optical Image Stabilization with 3 levels of control.
- Zoom, Focus and Iris controlled from Camera or remotely.
- REC Start/Stop from ZSG-C10 Grip Unit.
- Image Stabilization is supported on Canon EOS DSLR Cameras (EOS 7D Mark II, 70D, 80D, 1D C, 1D X, 1DX Mark II, 5D Mark III, 5Ds, 5DsR, 6D).

## Canon 70-200 T4.4 Zoom, cont'd



Power for servo zoom, auto iris and auto focus is supplied through the contacts in the EF mount of Canon EOS C700, C300 Mark II and C100 Mark II. The contacts also enable camera control of focus, iris and zoom; record stop/start from the handgrip; and remote wireless and wired control.

These contacts also send lens metadata to the camera viewfinder and recorder. Lens data includes focus, iris and zoom positions, and choice of T-stop or f-stop readout.

Canon lens contacts can also provide electronic correction of shading (darkening around the edges of frame) and lateral chromatic aberration.

### Who Uses Canon Compact Servo Zooms?

Canon defines the Compact Servo as a zoom that fills the gap between Cinema EOS and EF Still Photography lenses: an affordable lens optimized for the independent content creator, often a crew of one.

Canon EF still photography lenses have a 30 year history of high performance, affordability and widespread availability. More than 130 million EF lenses have been produced.

Yasunori Imaoka, Canon Image Communication Products Group Executive explained, "Cine cameras were becoming more compact—but cine lenses remained the same large size. We wanted to make a zoom lens for motion pictures that matched the form factor of these new cameras so that the entire acquisition system would become more compact and flexible. We also wanted to make this lens suitable for every possible application: handheld, shoulder mounted, on rigs, gimbals, drones, remote heads, for feature, television, documentary and ENG style cinematography. It is the result of listening to feedback from our customers. We noticed that many people who use our cine cameras also use Canon EF lenses. Many requests from those users were for us to provide a motion picture specific lens with the auto focus and image stabilization functionality of EF still lenses, but with the gears, smooth zoom and iris control of cinema lenses."

So, Canon intends the Compact Servo 18-80 and 70-200 zooms to be used on independent productions, TV, documentaries, nature, wildlife, events, sports, schools, YouTube, Vimeo and Facebook. However, DPs have a habitual habit of coming up with all kinds of new applications for new equipment in ways the manufacturers never intended. There's one sure bet: Compact Servos will wind up in amazing locations and contribute to astonishingly new styles of shooting and when the brilliant Canon lens designers hear about this, they will smile mischievously because they probably expected this.





# Canon C700 with Compact Servo Zooms



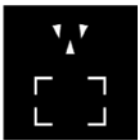
C700 with 18-80 Compact Servo Zoom

Hang on, weren't Canon Compact Servo Zooms intended for the independent filmmaker, the crew of one? What's this 18-80 doing on Canon's flagship, top-of-the line C700?

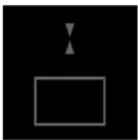
As described on the previous page, it winds up in all kinds of interesting places. The C700 is equipped with all the functions that can benefit from a Compact Servo. This C700 is ready to go up on a remote head at the end of a 45 foot arm on a blustery winter day.

Optical Image Stabilization is set to "B" — stronger correction. Focus, iris and zoom will be controlled from the ground.

The camera's helpful Dual Pixel Focus Guide let's you land focus remotely from a monitor with the dexterity of an air traffic controller.



Focus Farther



In Focus



Focus Closer



C700 with 70-200 Compact Servo Zoom

ZSG-C10 accessory handgrip

# Canon Compact Servo Zoom Specs



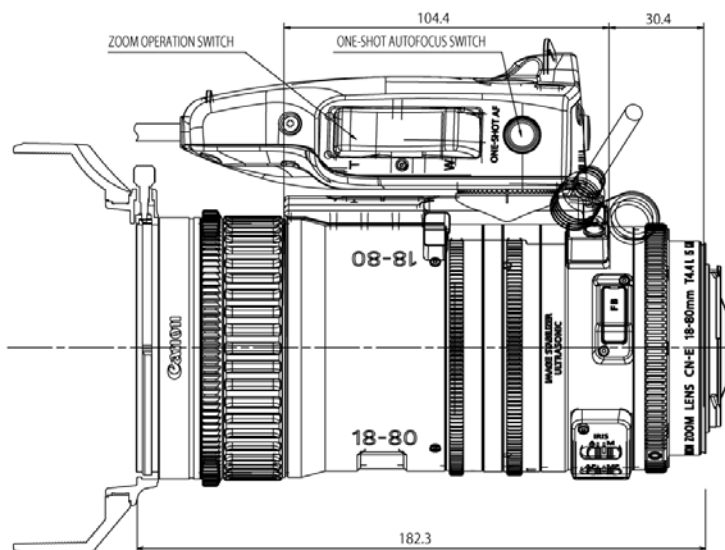
Above: 70-200. Below: 18-80. Same size. Gear rings in same positions.  
Similar weight 18-80=2.65 lb and 70-200=2.76 lb).



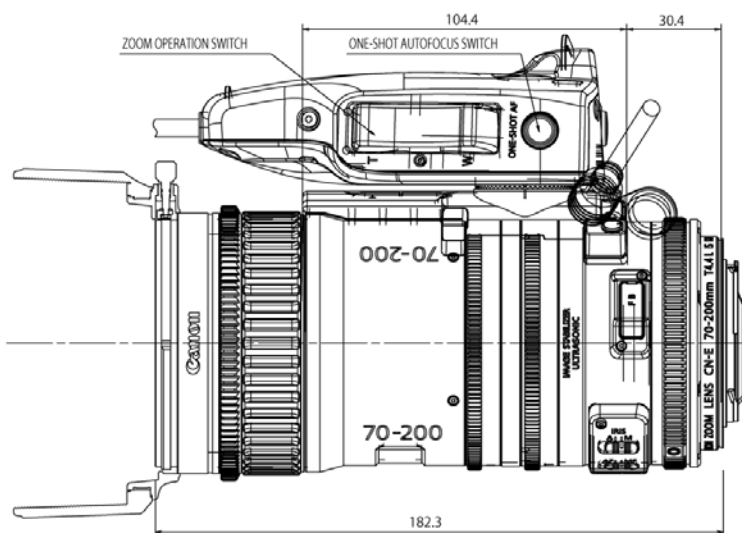
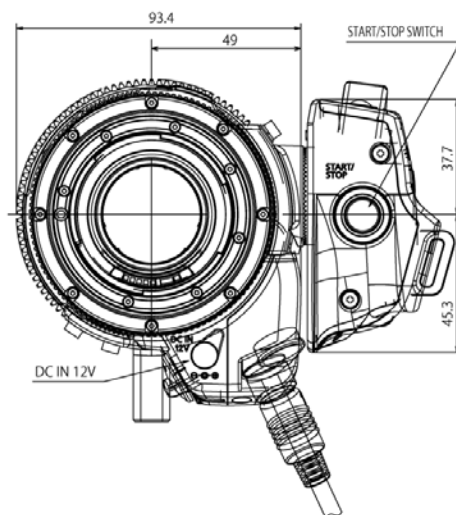
Compact Servo Zoom	CN-E18-80mm T4.4 L IS KAS S	CN-E70-200mm T4.4 L IS KAS S
Range / Aperture	18-80 mm T4.4	70-200 mm T4,4
Maximum Aperture (no ramping)	T4.4 f/4.0	T4.4 f/4.0
Mount	EF	EF
MOD	1.7' / 0.5 m	4' / 1.2 m
Image Format	Super 35	Super 35
Image Circle	31.4 mm	31.4 mm
Iris Blades	9 blades	9 blades
Weight (Lens without ZSG-C10 Handgrip)	2.65 lb / 1.2 kg	2.76 lb / 1.25 kg
Length	7.2 in / 182.3 mm	7.2 in / 182.3 mm
Front Diameter	84 mm	84 mm
Front Filter Thread	77 mm	77 mm
3 Position Optical Image Stabilization	A (Standard) - B (Max) - C (Tripod)	A (Standard) - B (Max) - C (Tripod)
Focus / Zoom / Iris Barrel Rotation	130° / 90° / 90°	130° / 90° / 90°
Focus Control / Gear	Manual - Auto / 0.8 M Gear	Manual - Auto / 0.8 M Gear
Iris Control / Gear	Manual - Auto / 0.5 M Gear	Manual - Auto / 0.5 M Gear
Zoom Control / Gear	Manual - Servo / 0.5 M Gear	Manual - Servo / 0.5 M Gear
Optional Handgrip with Zoom Rocker	ZSG-C10	ZSG-C10
Effective Focal Lengths with EF1.4xIII	—	98 - 280 mm T6.2 (1 stop light loss)
Effective Focal Lengths with EF2xIII	—	140 - 400 mm T8.8 (2 stops light loss)



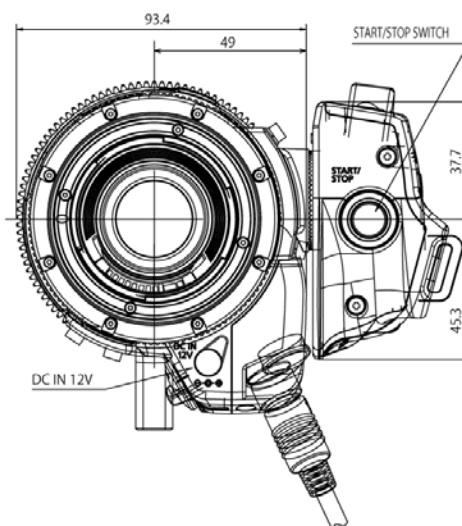
# Canon Compact Servo Zoom Dimensions



Canon 18-80  
Compact Servo  
Zoom



Canon 70-200  
Compact Servo  
Zoom



Canon 70-200  
Compact Servo  
Zoom

