

DATA

Lens Controller for Canon EOS objectives

Electronic controller for Canon EOS objectives, enabling remote computer control of focus and iris for use with C-mount cameras.

The Canon EOS lens controller gives total control of focus and iris settings of Canon photographic lenses from a remote computer without the expensive and complicated mechanical drives and motor controllers necessary for Nikon AF lenses. Connecting directly to a serial port, the Canon EOS lens controller takes command of the motors and encoders, built into all Canon EOS lenses, for fast, precise and trouble-free focus and iris control.



Benefits

- Enables use of world-acclaimed Canon EOS lenses for scientific imaging
- Fast and precise remote control of focus and iris settings
- Works with all Canon EOS lenses
- Direct computer control without external motors and controllers
- Rugged and reliable with no moving parts
- All electronics inside lens mount
- Programmed by simple ASCII commands
- Easy adaptation to Scheimpflug camera mounts
- Attractively priced

Applications

- Particle Imaging Velocimetry systems for large wind tunnels
- Submerged camera systems for wave or towing tanks
- Cameras placed in hot, cold or inaccessible locations

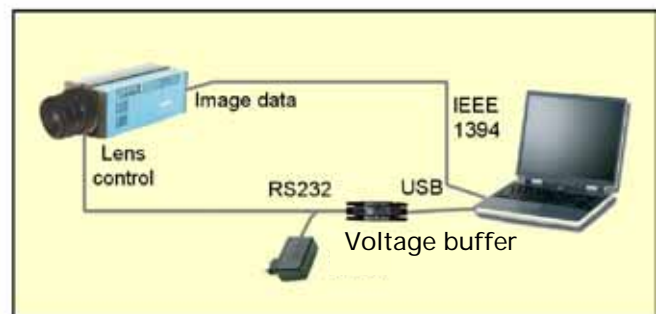
Why use 35 mm camera lenses ?

Many commonly used C-mount lenses were originally designed for low-resolution CCD sensors with diagonal sizes from 1/3 to 2/3 inch and are no match for the new, large size high-resolution sensors used in current scientific cameras. Many of these lenses suffer from distortions, chromatic errors, light fall-off towards the edges of the image and low overall light transmission, making them unsuitable for precision imaging with megapixel resolution cameras.

Camera objectives designed for professional 35 mm film cameras are a perfect match for these new image sensors, whose size and resolution is approaching that of the traditional film medium.

Why Canon EOS lenses ?

When tested for imaging quality by photo enthusiasts, the Canon EOS lenses come out in line with other high-quality objectives from Nikon, Leica and Contax. In contrast to these, all Canon EOS lenses have built-in electronic actuators for focus and iris, making full



Camera and remote lens control made easy

electronic control easy. All the other brands of lenses require delicate and expensive external motors and controllers, making Canon EOS lenses the obvious choice for compact, reliable and affordable remote control applications.

EOS lens focus and iris system

All Canon EOS lenses have built-in motors and encoders for both focus and iris control. The accuracy with which these can be controlled depends on the resolution of the encoders. Most Canon lenses have focus encoders with 1000—2000 steps between close-range and infinity and iris encoders with steps for each 1/2 to 1/4 aperture stop. This means that both controls can be set with excellent resolution and repeatability. The USM-type objectives are built with Canon's extremely fast and silent ultrasonic motors and are ideal for fast auto-focus systems.

Compatible Canon EOS lenses

The EOS lens controller has been tested with a number of Canon fixed-focus and zoom lenses. Fixed-focus lenses with focal lengths between 20 and 200 mm are the most useful ones for scientific imaging applications, but the controller can also be used with manual zoom lenses and image stabiliser (IS) lenses with the image stabiliser function disabled.

Canon fixed-focus EOS lenses 20 to 200 mm focal length

- EF 20mm f/2.8 USM
- EF 24mm f/1.4L USM
- EF 24mm f/2.8
- EF 28mm f/1.8 USM
- EF 28mm f/2.8
- EF 35mm f/1.4L USM
- EF 35mm f/2
- EF 50mm f/1.4 USM
- EF 50mm f/1.8 II
- EF 50mm f/2.5 Macro
- MP-E 65mm f/2.8 1-5x Macro
- EF 85mm f/1.2L USM
- EF 85mm f/1.8 USM
- EF 100mm f/2 USM
- EF 100mm f/2.8 Macro USM
- EF 135mm f/2L USM
- EF 180mm f/3.5L Macro USM
- EF 200mm f/2.8L II USM

A control Software is included in the package allowing the easy control of focus and aperture by the arrow keys of the keyboard or by directly moving to distinct positions.

Command set

The Canon EOS lens controller is used with a set of simple two-character ASCII commands, issued by any serial-port command software like Hyperterminal.

General commands

Initialise

Identify lens

Focus commands

Set focus counter

Move focus incremental

Move focus to infinity

Move focus to zero

Read position of focus

Aperture commands

Define aperture axis

Move aperture incremental

Move aperture absolute

Move aperture open

Move aperture closed

Read position of aperture

Ordering information

EOS-CON	Mounting ring with electronic lens controller and Canon EF lens mounting bayonet
EOS-CMA	C-mount adaptor with connector print and cable set, consisting of 9-pin D-sub connector for RS232 and breakout cable with jack connector for power.
EOS-PSO	Universal switching power supply, 95-230VAC - 6V/1.5A dc
EOS-PC	Extra Connector board



The screenshot shows the 'Cam1' control window. It features two main sections: 'Focus' and 'Aperture'. Each section has a 'Set as 0' button, a 'Jog +' button, and a 'Move' button. The 'Focus' section also includes 'Infinity' and 'Zero' buttons. The 'Aperture' section includes 'Close' and 'Open' buttons. At the bottom, there are buttons for 'Exit', 'Srvr', 'COM1', 'Save', 'Load', and 'Help'. The interface displays 'Used lens: 135mm, f20', 'Serial Nr.: 3940', and 'Srvr: 1202'. Labels with arrows point to various elements: 'Set actual position to zero' (Set as 0), 'Actual Position' (position display), 'Actual # #' (counter display), 'Increase or decrease target position' (Jog +), 'Move to infinity or zero' (Infinity/Zero), 'Used lens' (lens info), 'Launch or close server' (Srvr), 'TCP port used as server' (COM1), 'Increment' (arrow keys), 'Jog by increment' (Jog +), 'Close or open aperture' (Close/Open), 'Move to target position' (Move), and 'Init lens' (Init).

The arrow keys are shortcuts for the jog buttons. Left and Right for control focus. Up and Down for aperture.

