



ELECTRONIC CONTROL SYSTEM

Any camera. Any lens.

Flexible control for any setup

ARRI's Electronic Control System is a sophisticated toolset for precise wireless remote control of any camera and any lens; it also provides valuable metadata about exactly what the lens is doing at any given moment.

All tools within the modular, future-proof system can be freely combined to provide powerful, scalable solutions for any application. Ergonomic, feature-rich hand units ease the work of the focus puller, while compact, intelligent motor controllers optimize camera setups.

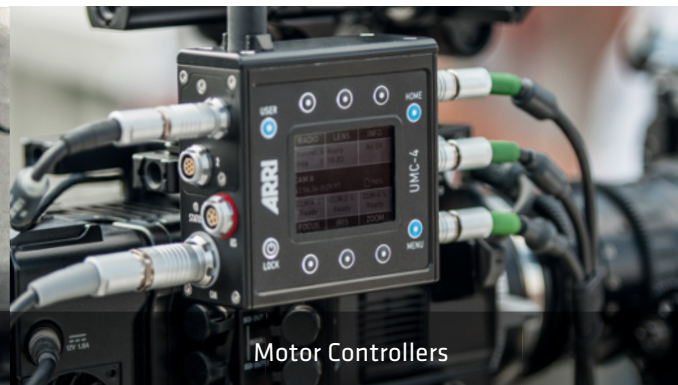
ARRI has assembled the most complete professional system on the market, ready for any challenge on set.



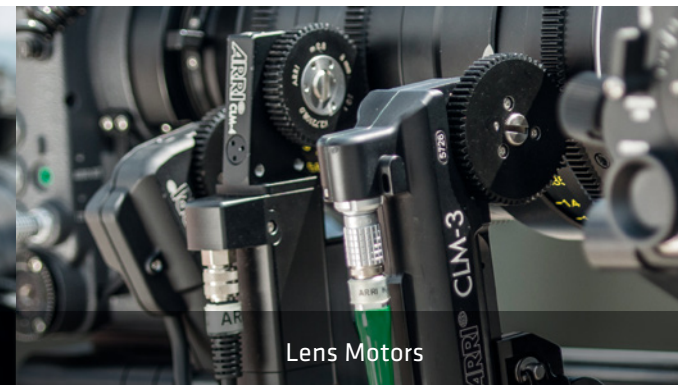
Photo: Michael Borenstein



Hand Units



Motor Controllers



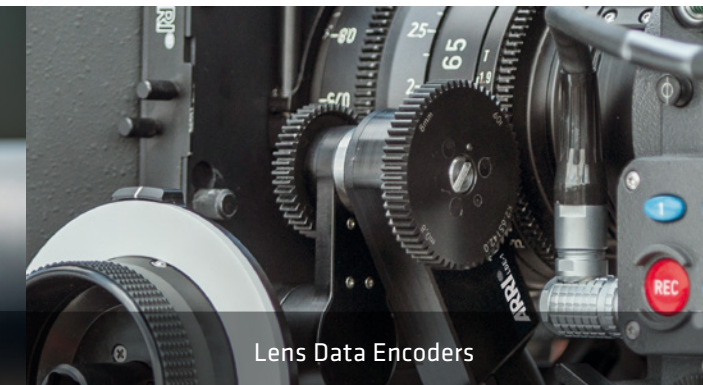
Lens Motors



ARRI Lens Data System®



Distance Measurement



Lens Data Encoders

Any camera, any lens

ARRI's various motor controllers give the Electronic Control System complete operational autonomy, allowing the wireless hand units and other system elements to be used with all kinds of lenses and cameras,

from high-end anamorphic PL mount optics to ENG zooms, and from the new ARRI AMIRA to literally any third-party camera on the market.



"My ARRI wireless package includes the WCU-4, SXU-1 and lens motors, which I use with ALEXA Plus cameras regularly. For situations where I may be called upon to outfit an ALEXA, AMIRA or cameras from other manufacturers, the UMC-4 is a great way of extending the capabilities of my wireless system to give me the same functions as with an ALEXA Plus camera. I'm also looking forward to working with the single-axis motor controller SMC-1, which I can use for special camera rigging."

Jose Manzano, AC from Vancouver, Canada



The Universal Motor Controller UMC-4 is the most advanced motor controller available today. It connects with up to three different hand units to drive focus, iris and zoom motors on any lens. The integrated ARRI Lens Data System® (LDS®) provides real-time information about focus, iris and zoom settings, enabling lens mapping to pre-marked focus rings, depth-of-field display on the Wireless Compact Unit WCU-4 and focus tracking – setting the focus motor to continuously follow a particular subject in the image by using an ultrasonic measuring device.

The frame-accurate lens data also includes timecode and facilitates VFX tasks in post. Optional adapter modules provide direct compatibility with broadcast-style control demands for focus and zoom.



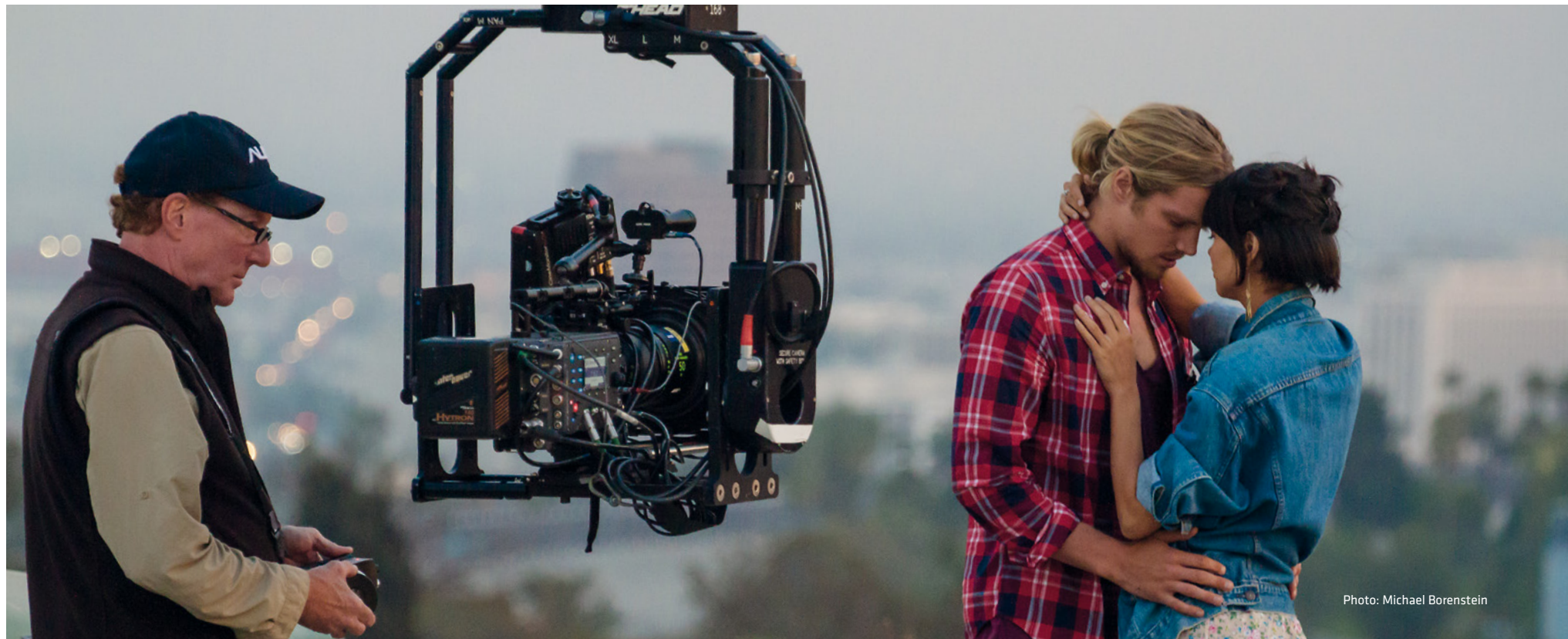


Photo: Michael Borenstein

Full ALEXA integration

ARRI has integrated motor controllers into ALEXA Plus, XT Plus, Studio and XT Studio cameras, enabling compact configurations with minimal clutter around the camera. Fewer accessory boxes means reduced size and weight, while fewer cables means faster setup times and greater reliability.

Remote control of advanced ALEXA functions such as shutter angle, exposure index and false color are also possible with the WCU-4 wireless hand unit.

ALEXA Plus, XT Plus, Studio and XT Studio cameras are compatible with ARRI's zoom controller and hand units, up to three of which can be combined for maximum flexibility on set. The WCU-4 offers advanced ALEXA remote control and can display distance readouts from ultrasonic distance measuring devices. Three different lens motors offer varied options for torque, speed and size, while frame-accurate lens metadata is stored with the images for postproduction.



Greig Fraser
Photo: Jonathon Olley

"The ergonomics of the WCU-4 are perfect for what I do. Primarily I was using it for iris control, but I also really like the ability of the WCU-4 to change settings such as ASA and color controls on the ALEXA Plus. I am normally very hands-on, so when I am physically away from the camera I need to feel like I still have full control."

Cinematographer Greig Fraser, ACS, ASC

Lightweight and simple

The Single Motor Controller SMC-1 drives a single CLM motor and is the perfect counterpart for the Single Axis Unit SXU-1, offering an attractive 1-channel system. The small and lightweight package provides basic lens control for setups where size and weight matter.



Plug and play for servo zooms

The ENG Motor Controller EMC-1 is a unique solution for ENG-type lenses that include a servo module. It allows full 3-axis control of focus, iris, and zoom with the WCU-4 and SXU-1 hand units - without any need for external lens motors. Setup is fast, size and weight are reduced, and lens data is instantly available on the WCU-4.



Photo courtesy of Ntropic

The most versatile lens data

Integrated ARRI Lens Data System technology brings the added value of frame-accurate data about focus, iris and zoom settings, which is tremendously beneficial for both on-set and postproduction tasks. Again, these benefits are available for any camera and any lens.

With lens settings and exact depth-of-field displayed live on wireless hand units, precise adjustments can be made during a shot. The highly accurate data also allows lens mapping to pre-marked focus rings and focus tracking with an ultrasonic measuring device.

ARRI lens data reduces the time and effort required to achieve complex visual effects by helping to match a virtual lens to the recorded image in postproduction, or even driving the virtual lens optics in a real-time VFX system on set.

How does the Lens Data System work?

Lens data generation has two basic requirements: **encoders** that determine the current setting of a lens axis, and a **lens table** that interprets these raw encoder values. ARRI offers two configurations:

Option 1. LDS lens and LDS-mount camera

Each LDS lens can detect the position of its lens rings and store its own lens table. When mounted to an LDS-compatible camera, the data is transmitted direct to the camera, which calculates precise lens values, accurate to the frame.

Option 2. External lens encoders and the Lens Data Archive

ARRI's controlled lens motors and the Lens Data Encoder LDE-1 deliver raw data about the position of the lens rings to either a UMC-4 or an ALEXA Plus module. These devices incorporate the LDS Lens Data Archive, which provides the relevant lens table and enables them to calculate the lens value.



DER MINISTER - VFX by Stargate Studios



Eliot Mack

"ARRI has taken the lead in embedding detailed camera and lens metadata directly into the HD-SDI signal on their cameras. With the ALEXA, we can use that data to drive the virtual lens optics in our Previzion real-time visual effects system, giving us what we need while keeping the on-camera equipment clean and minimal."

Eliot Mack, CEO of Lightcraft Technology



WCU-4 Main Features

- Ergonomic 3-axis lens control
- Vibrating markers
- Easy-to-read lens data display
- Ultrasonic distance readout
- Backlit focus knob with adjustable friction
- Pre-marked focus rings
- Focus tracking function
- Remote REC and tally
- Advanced ALEXA remote control
- Lens programming interface



It's all in your hands

The Wireless Compact Unit WCU-4 is a lightweight, ergonomic hand unit offering up to 3-axis lens control. Rugged and splash-proof, it features an easy-to-read lens data display, vibrating alerts that allow focus pullers to keep their eyes on the action and ALEXA remote control functionality. The large lens data display reflects ambient light and remains clearly visible even in direct sunlight, while the backlit focus knob and control buttons allow the WCU-4 to also be used in darkness.



"I have owned the WCU-4 for a few months and I love it. It fits my hand like my favorite, well-worn baseball glove and the menu functions are simple and intuitive. It's great having complete control of ALEXA camera functions on the handset, from frame rate to false color on the monitor out, but the best feature is the vibrating focus knob because you don't even have to look at the handset; when you hit the pre-set focus mark the handset vibrates and you know your focus is spot on."

Antonio Panetta, 1st AC - IATSE Local 600 - NYC



Antonio Panetta
Photo: Tim Dolan

SXU-1 Main Features

- Single-axis lens control
- Controls focus, iris or zoom
- Backlit control knob
- Small footprint when standing upright
- Remote REC and tally



ZMU-3A and WZE-3 Main Features

- Force-sensitive knob
- Drives CLM motor without additional motor controller
- Adjustable zoom speed and range
- Selectable zoom response modes
- Zoom position display
- Remote REC and tally
- WZE-3 provides wireless extension for ZMU-3A



Keep it simple

The Single Axis Unit SXU-1 is a simple, single-channel hand unit that can be set up to control focus, iris or zoom. The SXU-1 can be used alongside the WCU-4 for separate iris control, perhaps operated by the cinematographer in situations where subtle exposure adjustments are required during travelling shots. Alternatively it can be used with the SMC-1 single motor controller, providing a simple, low-cost option to productions that do not need multi-axis wireless lens control.

Precision zooming

The Zoom Main Unit ZMU-3A is a handgrip zoom controller that can be mounted on tripod pan arms while being connected to the camera and lens motor. It features a force-sensitive zoom knob familiar to camera operators and assistants all over the world. The small and lightweight Wireless Zoom Extension WZE-3 frees the ZMU-3A zoom controller of its cables. Once attached, wireless zooming is possible from anywhere on the set.





Efficiency through integration

ALEXA Plus, XT Plus, Studio and XT Studio cameras feature integrated motor controllers that allow the Electronic Control System to be used in a more compact, lightweight and efficient configuration, with fast setup times and great reliability. ALEXA shutter angle, exposure index, false color and more can be remotely set with the WCU-4 hand unit, while lens and inclinometer data is directly embedded with the images for postproduction.



UMC-4 Main Features

- 3-axis motor controller for any camera
- Accurate lens data with any lens
- Tilt and roll sensor
- Lens metadata and timecode capture to SD card
- Focus tracking with UDM-1
- Serial interfaces (RS232/422/485)
- Ethernet interface for IT integration
- Optional interfaces to broadcast-style focus and zoom demands

ALEXA Plus Module Main Features

- Integrated 3-axis motor controller
- Fast and simple configuration
- Accurate lens data with any lens
- Tilt and roll sensor
- Lens metadata is recorded with the images
- Remote camera control with the WCU-4 hand unit



Autonomy and freedom

The Universal Motor Controller UMC-4 allows ARRI's Electronic Control System to function as an autonomous, camera-independent system. With it, up to three different hand units can be used to control focus, iris and zoom motors on any lens, attached to any camera. Lens data can be displayed on the WCU-4 hand unit and used for focus tracking, while also being stored with timecode for VFX applications in post. Multiple interfaces facilitate compatibility with peripheral equipment.





Diverse options

The three available controlled lens motors offer a range of torque, speed and size choices for 19 mm, 15 mm or 5/8" support bars. The compact CLM-2 is a proven workhorse for everyday applications; the CLM-3 is strong and fast for heavy lenses or difficult conditions; and the CLM-4 is exceptionally smooth and quiet, with flexible mounting options.



Compact and sleek

With the ENG Motor Controller EMC-1, the integrated focus, iris, and zoom servos on ENG lenses can be controlled with the WCU-4 and SXU-1 hand units, reducing size and weight to a minimum.

The Single Motor Controller SMC-1 is a compact 1-axis unit that drives a single CLM motor and is designed for weight and size-critical setups. It perfectly complements the SXU-1 single-axis hand unit.





Easy focus tracking

The Universal Distance Measure UDM-1 measures the distance between the film plane and objects in the frame, on any camera. It comes with a sensor module and a display unit that includes the option of setting limits for the measuring range. When used with ALEXA Plus, XT Plus, Studio and XT Studio cameras, or the Universal Motor Controller UMC-4, the measured distance can be displayed on the WCU-4 hand unit. The UDM-1 also enables focus tracking with the UMC-4.



Lens data for all

The Lens Data Encoder LDE-1 is part of ARRI's Lens Data System. Incorporating an encoder that delivers data indicating the position of the lens ring to which it is attached, the LDE-1 can be used in parallel with a manual follow focus unit or a third-party wireless lens control system. It allows lens data to be generated in situations when an ALEXA Plus or UMC-4 is being used without an ARRI lens motor or an LDS lens.

Global service and support for an international industry

ARRI products are renowned all over the world for their precision and durability. Despite this, ARRI values the trust of its customers in after-sales service and support as highly as their trust in the

equipment itself. With service centers covering the entire globe, we are never too far away to provide the support you need, wherever you might be.



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