

Varizoom
www.varizoom.com

Cinema Pro JR-K4

Operations Manual



BEFORE YOU START, READ THESE WARNINGS

- 1) **ONLY USE VARIZOOM POWER SOURCES AND CABLES. USING DIFFERENT POWER COMPONENTS CAN LEAD TO SEVERE DAMAGE TO THE HEAD AND EVEN THE CAMERA. THIS TYPE OF DAMAGE IS NOT COVERED UNDER WARRANTY.**
- 2) **TURN OFF POWER WHEN NOT IN USE. DO NOT LEAVE STATIONARY HEAD POWERED UP FOR EXTENDED PERIODS OR THE MOTORS MAY SEIZE AND THIS IS NOT COVERED BY WARRANTY**
- 3) **ALWAYS BALANCE THE CAMERA ON THE PLATFORM BOTH HORIZONTALLY AND VERTICALLY.**
- 4) DO NOT MODIFY THE SUPPLIED CABLES OR ATTEMPT TO DISASSEMBLE THE HEAD.
- 5) LENS CONTROL CABLES MUST ONLY BE PLUGGED INTO THE SPECIFIED INPUT JACK ON THE LENS ITSELF – **NEVER PLUG A 12-PIN CONNECTOR ON A VARIZOOM LENS CONTROL CABLE INTO THE 12PIN JACK ON THE CAMERA BODY.** WHEN IN DOUBT, CONSULT VARIZOOM OR YOUR LENS MANUAL.
- 6) DO NOT GET THE SYSTEM WET – IT IS NOT WATERPROOF.
- 7) ALWAYS MAKE SURE YOUR LENS AND POWER CABLES HAVE ENOUGH SLACK RUNNING THROUGH THE TILT AXIS TO PREVENT TWISTING AND TEARING OF THE CABLES.
- 8) MAKE SURE YOUR LENS CLEARS THE BASE OF THE HEAD WHEN TILTING. IF THE LENS DOES NOT CLEAR THE BASE, SET SOFT LIMITS (SECTION 7) TO PREVENT THE LENS FROM STRIKING THE BASE OF THE HEAD WHEN TILTING.
- 9) WHEN USING THE CP JR's ONBOARD LENS CONTROLS TO CONTROL YOUR CAMERA, ALWAYS POWER THE CAMERA UP LAST. OTHERWISE, THE RECORD START/STOP FEATURE MAY FALL OUT OF SYNC. TO AVOID THIS ISSUE, JUST MAKE SURE TO CONNECT XLR POWER TO THE HEAD **BEFORE** YOU TURN YOUR CAMERA ON.

General Description

The CinemaPro JR is a lightweight, two-axis motion control head with lens interface controls for zoom and focus. It handles several control signals: RS-232 for Fujinon digital lenses or Varizoom (TOC) motor drives, RS-422 for Canon digital lenses or Preston motor drives, analog control for Fujinon or Canon.

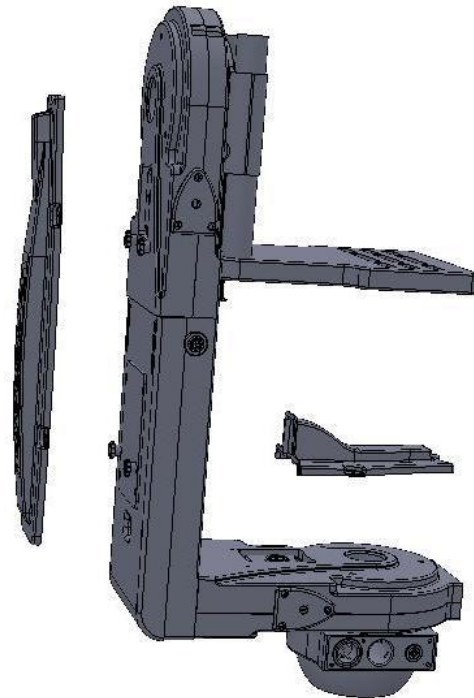
1. Basic Setup

- Secure the head to crane, tripod, or solid mounting beam
- Plug the FACTORY POWER SUPPLY into AC mains
- Connect XLR cable between head and FACTORY POWER SUPPLY
- If present, plug the zoom/focus hand unit into the Jibstick Pro, THEN plug the green control cable into the green 7pin port on the Jibstick Pro
- If applicable, connect camera power (red) and lens control cables (orange) and route the cables through the tilt axis port hole to connect to your camera
- Make sure to turn camera power on as the LAST step.



Feeding External Cables through the Head

In some cases, you will need to feed video or other cables through the head. To do so, simply remove the cable covers (pictured at right, covers may differ slightly in appearance). 4 screws secure the long vertical cable cover, while only 2 screws secure the short horizontal cover. Run the cables through the pan base and tilt arm with enough slack, and reattach the cable covers.



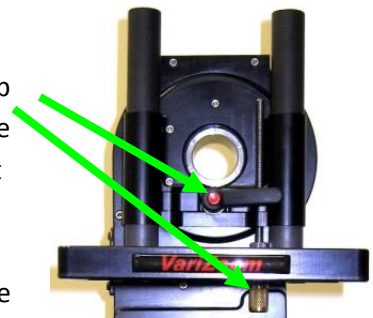
If using the TOC system

Connect the TOC 3A (3 axis lens drive box) between the orange 16-PIN lens control connector located on the head, and the grey "control" connector located on the TOC 3A. Connect the Lens drive motors to the appropriate connection according to their function (zoom, focus, iris)

Balance the Camera – Although the head will hold position very well, it operates best when the camera is balanced on the mounting platform. With heavier cameras, it is essential, as an out-of-balance load will cause the servos to constantly fight to hold position. **Make sure that the motor power is turned off before balancing. This will allow you to move the tilt axis by hand.** To balance the camera horizontally, you need to place the camera's front-to-back center of mass at the center of the mounting platform slot. You can do this by trial and error, sliding the camera front-to-back on the mounting platform until it stays level. The simplest accurate way to find the camera's center of mass is to lay a pencil/pen on a table and try to balance the camera on it front-to-back. The spot on the camera where it comes closest to balancing on the pencil is the center of mass. Place the camera's center of mass at the center of the mounting slot and secure the camera with mounting screws (2 if possible). When horizontally balanced, the platform should stay level.

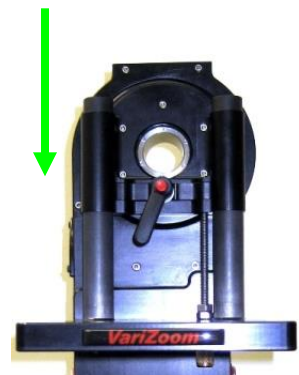


To get the vertical balance right, raise or lower the platform to get the camera's vertical center of mass located on the center of tilt rotation. To adjust, loosen the platform locking lever about ½ turn. Turn the black knob on the underside of the platform to precisely raise or lower it – you can use a hex key. Try to get the camera's center of mass right on the center of tilt rotation. Rotate the platform to various angles and adjust until it holds position at any angle. If it falls down, you need to adjust the platform upward. If it drifts upward, you need to lower the platform. When balance is achieved, tighten the platform locking lever.



After all connections have been made and the camera is balanced, the head is ready to be powered up.

Connect the power supply to AC power. Plug in the green communication connector to the head, and the other end to the jibstick. The jibstick should now power up. Once the Sync light is illuminated, you may then turn on the motor power switch.



2. Jibstick Pro

Camera Run (record start/stop) when using optional lens cable

Soft Limits – set motion limits for pan & tilt, also lock the limits w/ “Limit Save”



-Zoom Calibration – centers analog lenses when using optional zoom control & lens cable

-Smoothing (both pan and tilt)

-Pan Speed

-Tilt Speed

Professional Long Throw Joystick for Pan & Tilt - zoom and focus available through separate plug-in pistol-grip hand unit

USB Connector- Allows you to set the parameters for lens and joystick through a PC. Download the “PC GUI” program under the “Product Support” tab here:

<http://www.varizoom.com/product-p/vzcp-t05.htm>

7pin Green Control Connector - Connect this to the communication cable, and connect the other end of the communication cable to the green connector on the head. This cable handles communication between the head and Jibstick Pro, but also backfeeds power to the Jibstick Pro.

5pin White Analog Lens Control Connector - Connects peripheral analog lens controller for zoom and focus via the 16pin port on the head. Focus will only be available on capable lenses.

8pin Gray Digital Lens Control Connector – Connects serial devices like TOC or future lens controls

Pan/Tilt/Zoom/Focus Response Direction- Reverses the response direction for each axis

Limit Save – This switch locks the motion limits (“Travel Limits”). When it is switched, you cannot set or change limits. To enable, flip the other direction.

Travel Limits for Pan- To set motion limits for the pan axis, move the head in one direction to the desired limit, then press the corresponding “Travel Limits” button. The light will turn green when the limit is set and turn red when the head has reached that limit. Repeat for the other direction and test the limits to make sure they are working properly. Press the lit button again to disable the soft limit.

NOTE: Limits are not stored when power is removed – you must reset the limits with each power cycle.

Travel Limits for Tilt- To set motion limits for the tilt axis, move the head in one direction to the desired limit, then press the corresponding “Travel Limits” button. The light will turn green when the limit is set and turn red when the head has reached that limit. Repeat for the other direction and test the limits to make sure they are working properly. Press the lit button again to disable the soft limit. **NOTE: Limits are not stored when power is removed – you must reset the limits with each power cycle.**

Joystick for pan/tilt operation- Move the joystick in the direction you wish the head to move. The response direction can be changed with the “P/ T “Direction” switches.

Communication- Indicates that there is two-way communication between the head and Jibstick Pro.

Power- Indicates that power is established between head and Jibstick Pro

“Zoom Null” Calibration Knob - When using an analog ENG lens, this knob helps you tune the rest voltage. If the lens is plugged into the head, and zoom is drifting, adjust this knob until the lens stops zooming. For additional adjustment, go to the advanced parameter settings in the PC GUI (next page).

Smoothing- Adjusts the amount of smoothing for pan and tilt. The higher the smoothing is set, the more “ramping” at the start/end of any move.

Speed- Independently adjusts the maximum speed for the pan and tilt motors.

Motor Power- Switches the pan and tilt motors on or off

Zoom/Focus Hand Controller – This analog pistol-grip controller plugs into the white 5pin Lemo on the Jibstick Pro and allows remote zoom and focus control of your lens (when available). This controller should be plugged into the Jibstick Pro before connecting the green 7pin comm cable, as the main processor looks for the controller when booting up in order to calibrate the inputs. If you accidentally connect in the wrong order, just unplug and replug the green cable and the system will recalibrate.

Advanced parameter settings – PC GUI

Download the Graphical User Interface (GUI) from our website: <http://www.varizoom.com/product-p/vzcp-t05.htm> (under “Product Support” tab). Connect the jibstick to a PC via USB. After both are connected, **1) Click “Get Data From Controller”**. You can now make changes in the GUI. When you’re finished , **2) Click “Send Data To Controller”** to make your changes live.

Lens Control

When using digital Canon or Fujinon lenses or Preston systems, select the manufacturer. When using analog lenses or Varizoom TOC system, select “Default”.

When using an analog ENG lens, you can fine tune the zoom or focus voltages to help the lens respond properly.

Zoom Setup

This is where you can adjust the speed and smoothing for zoom

Joystick Deadband

This will control how far the joystick must be moved before it responds

Misc Controls

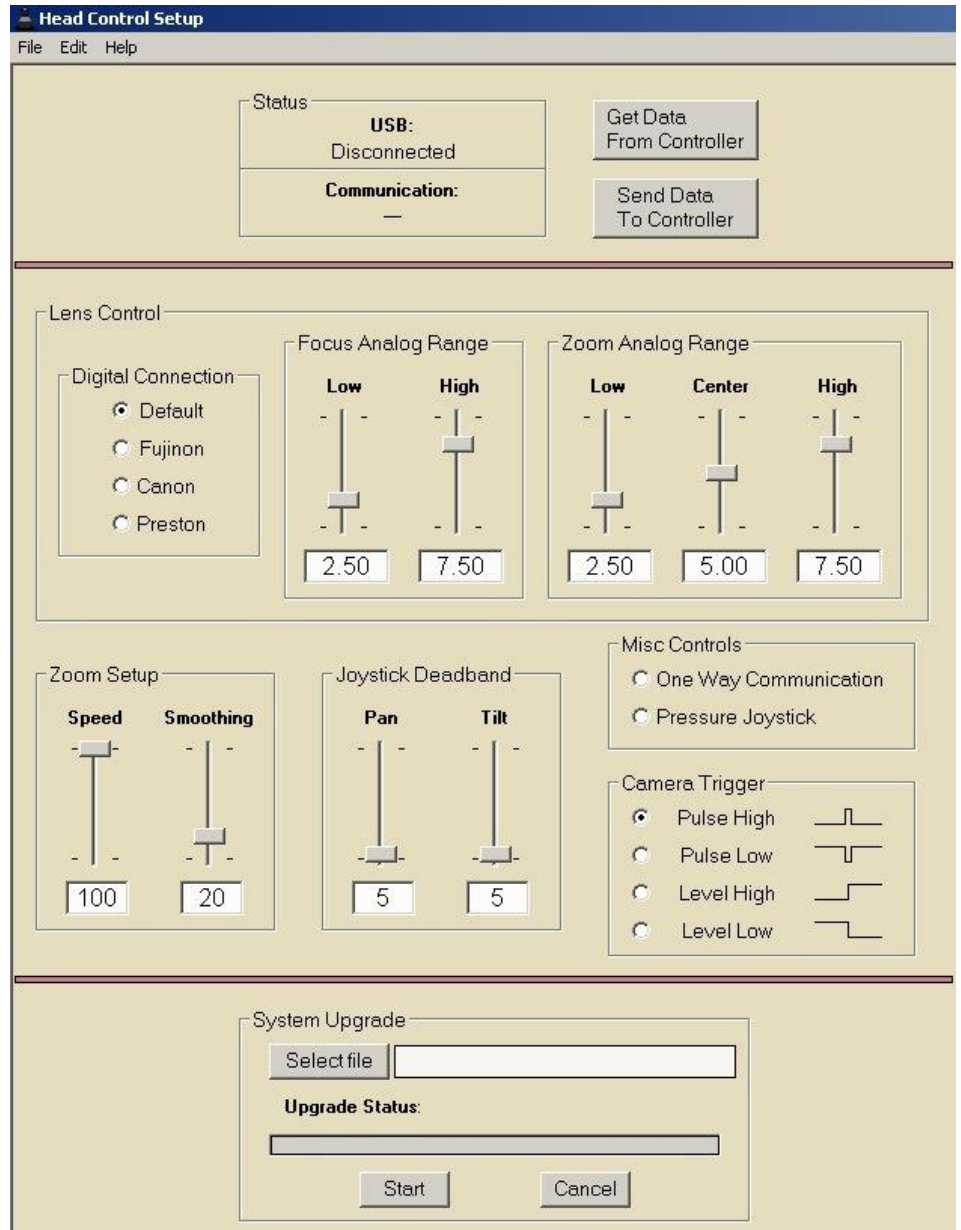
These controls aren’t used yet. They are reserved for future use

Camera Trigger

Cameras use different systems for start/stop record – change this setting to match your camera

System Upgrade

Allows updates to the Jibstick Pro firmware



Setting the Voltages for Analog Lenses

Make sure “Digital Connection” is set to “Default” and connect all power, communication and lens cable (orange). More than likely the lens will start zooming on its own, but this is only because the center voltage hasn’t been set for your lens yet.

Move the “Zoom Null” knob to its center position.

If the lens is zooming toward telephoto, lower the center number by a full volt and click “Send Data to Controller.” If the lens remains at full telephoto, lower it again by another volt and click “Send Data to Controller.” Keep doing this until the lens begins to zoom back toward wide angle. Then slowly raise the number (clicking “Send Data to Controller” each time) until your lens stops zooming. Basically you are finding the “rest” voltage for your particular lens.

Once you have the “Center” voltage set, adjust the “Low” and “High” voltages so they are equally far from “Center” – for example, if your center voltage is 1.7v then try making low 0v and high 3.4v. Click “Send Data to Controller” to finish and test the zooming function in both directions to make sure it moves equally fast both ways.

If available, focus is simple to set – just adjust the high and low voltages and make sure the focus adjustment reaches both ends.

3. Troubleshooting

No Response from head

- 1) Make sure that the motor power switch is turned on and the light above it is green.
- 2) Check to make sure soft limits aren't set too close together. Disable all soft limits and try again.
- 3) Power down the system for 20 seconds and start it back up.

Head is "jerky" or too responsive

- 1) Turn down motor speed.

My jib or crane sways, swims, moves around when the head is rotating

- 1) This is a problem of imbalance in rotational inertia. If the jib moves when panning, you need to attach the optional counterweight. If the jib moves around when tilting, you need to adjust the vertical balance (adjust the camera platform until the camera's center of gravity is on the center of tilt rotation).

Head moves on its own

Cycle power and do not touch the joystick when powering up the system. The joystick has to calibrate on power-up, so if it's off-center then it will calibrate incorrectly.

4. Options and Specs

Additional Head options-

The Head can be fitted with either a 100mm half ball or Mitchell mount. A Mitchell ring adapter is available for old style Mitchell mount.

An adapter is also available to adapt Mitchell mount to Jimmy Jib style mount.

Wireless control is available, and operates up to ¼ mile. (1 mile with line of sight).

Additional controller cables are available in 50', 100', or 150' increments. A coupler is available to join the cables, or we will make a cable of any reasonable length as a custom item on request.

Head XLR power cables are available in standard 30' or 75' increments, or longer as a custom item on request.

External Lens Drive Motors available for separate purchase

Specs-

Head construction: Primarily Aluminum, with carbon fiber platform rails and some stainless steel, steel, and bronze components

Height: 20.5"

Width: 11.3"

Depth: 6"

Weight: 13lbs

Camera weight limit: 35lbs

Maximum speed: 130 deg/sec (limited for optimal performance)

Power Supply (included): 24VDC, 5A

Head Power Requirements: 24 VDC regulated, 120 watts max

WARNING: Do not connect the head to any power supply other than the one supplied. If you must power the head another way, make sure you clear it with VariZoom first.

Connectors-

Head Base connectors

Controller - 7pin LEMO (green)

XLR 4-pin Head/Camera Power

Passageway for external cables (video, lens control, etc.)

Head Top connectors

Lens Control Out to camera/lens/lens drive - 16pin LEMO (orange)

Camera Power Out - 2pin LEMO (red)

Controller connectors

CTRL - 7Pin LEMO – Head control cable (green)

SERIAL - 8pin LEMO – TOC or Preston Lens Drive Hand Units (gray)

ANALOG - 5pin LEMO – Pan Bars zoom & focus controls (white)

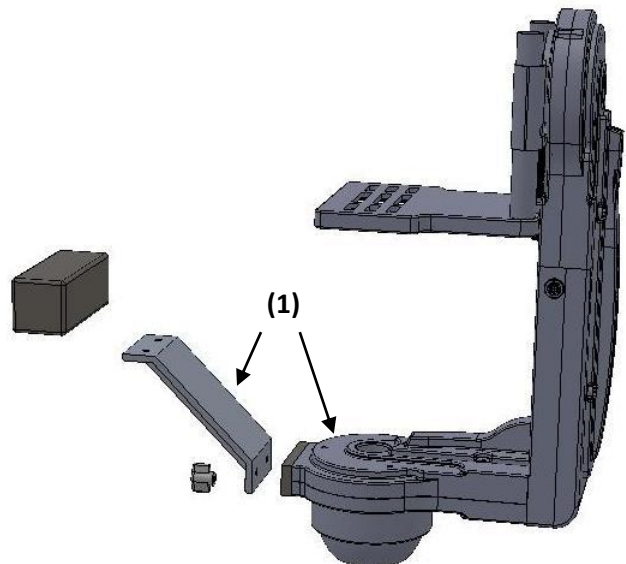
Jib Counterweight Option

Some lightweight jibs may not have enough mass to neutralize the high acceleration and torque of the CP Jr head. If the motion of the head causes your jib to sway from side to side in a way you want to eliminate, we have a counterweight option that will effectively eliminate the problem.

Heavier jibs will not be affected much, and the effect is only significant during sudden moves. Adding our counterweight to the CP Jr balances out the rotational inertia so even lightweight jibs will not be susceptible to the swaying effect caused by sudden moves.

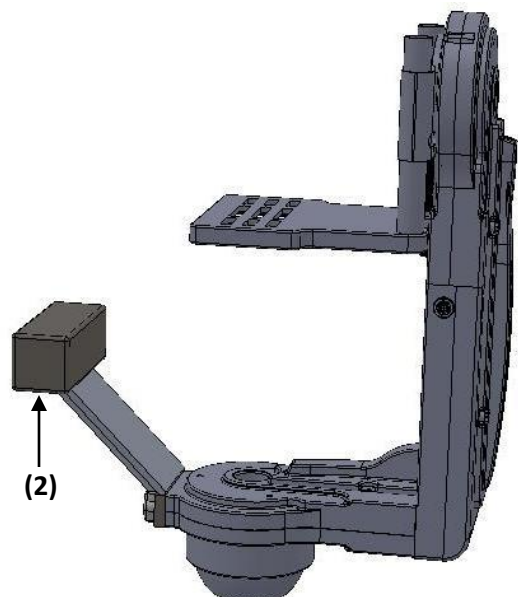
Attaching the counterweight is simple. Before attaching the counterweight, fix the head to your jib.

(1) Start by attaching the interface plate to the head with the 4 small screws (supplied). Now fix the support arm to the interface plate using the supplied thumbscrews, lockwashers, and flat washers. Put the flat washers between the support arm and the lockwashers to prevent scratching. Tighten the thumbscrews thoroughly.



(2) Now attach the square weight to the support arm, using the same type of thumbscrews, lockwashers and washers. Tighten the thumbscrews thoroughly.

The counterweight adds about 7 lbs total weight to the system, so if you don't need it, try operating without it first. Also note that some swaying may be caused by the camera platform being out of vertical balance – remedy this by adjusting the camera platform up or down so the camera's center of mass is on the center of tilt rotation.



Appendix

24VDC Power Supply Connector

1) Power Supply Connector – XLR 4-pin Female

Pin	Function	Wire Color
1	N.C.	
2	CP JR Neg.	Black & Green
3	CP JR Pos.	White & Red
4	N.C.	

* 2) Optional XLR Y-adaptor for running head AND camera power through single XLR extension

Y-1 “Camera” Power Input Male XLR Connector

Pin	Function
1	Camera Neg.
2	N.C
3	N.C.
4	Camera Pos.

Y-2 “Head” Power Input Male XLR Connector

Pin	Function
1	N.C.
2	CP JR Neg.
3	CP JR Pos.
4	N.C.

Y-Single Female XLR Output Connector (combines Camera & Head Power into one XLR cable run – connect to 30’ XLR extension that plugs into CP JR head)

Pin	Function
1	Camera Neg.
2	CP JR Neg.
3	CP JR Pos.
4	Camera Pos.

CP JR Head - Base Connectors

1) Head Control Connector (Green) – LEMO EGG1B307CLL

Pin	Function	Wire Color (Cable)	
1	Common	Brown	
2	RS-422 RXD	Red	
3	RS-422 RXD!	Orange	
4	RS-422 TXD	Yellow	
5	RS-422 TXD!	Green	
6	24 VDC +	Blue	Power to Remote or Jibstick
7	24 VDC -	Violet	Power to Remote or Jibstick

2) Power Input Connector – XLR 4-pin Male

Pin	Function	Wire Color
1	Camera Neg.	Black
2	Cinema Pro Neg.	White
3	Cinema Pro Pos.	Red
4	Camera Pos.	Green

***** WARNING: DO NOT POWER THE CINEMAPRO JR WITH ANYTHING OTHER THAN THE INCLUDED FACTORY POWER SUPPLY OR YOUR WARRANTY MAY BE VOIDED. THE UNIT MAY BE SEVERELY DAMAGED AND CAUSE DAMAGE TO YOUR CAMERA IF YOU USE A NON-APPROVED POWER SUPPLY. IF YOU MUST POWER IT USING A BATTERY SYSTEM, MAKE SURE THE SETUP IS APPROVED BY VARIZOOM AND EXECUTED BY A QUALIFIED TECHNICIAN.**

CP JR Head - Top Connectors

1) Camera Power (Red) – LEMO EGG2B302CLL

Pin	Function
1	Camera Power +
2	Camera Power -



2) Lens Control (Orange) – LEMO EGG2B316CLL (Final Version)

Pin	Function	Lens Connection
1	RS-232 RXD	Fuji Digital
2	RS-232 TXD	Fuji Digital
3	+5 VDC – Iso	Fuji Digital
4	Common – Iso	Fuji Digital
5	RS-422 RXD	Canon Digital
6	RS-422 RXD!	Canon Digital
7	RS-422 TXD	Canon Digital
8	RS-422 TXD!	Canon Digital
9	Common	
10	+5 VDC	
11	Analog #1	Zoom
12	Analog #2	Focus
13	Camera Run	
14	Camera Run	
15	24 VDC +	
16	24 VDC –	



Lens Connection Table

Lens Control, 16 pin LEMO FGG2B316CLAD

	Fujinon Digital	Fujinon Analog	Fujinon Telecon	Canon Digital	Canon Analog
	HR10A-10P-10P	HR10A-10P-12P	HR10A-10J-12P	HR25-9P-20P	HR25-9P-20P
1 RS-232 RXD	3				
2 RS-232 TXD	2				
3 Iso Vcc	4				
4 IsoCom & IsoCom3	5			19 & 20 - Green	
5 RS-422 RXD				17 - Orange	
6 RS-422 RXD!				18 - Yellow	
7 RS-422 TXD				15 - Brown	
8 RS-422 TXD!				16 - Red	
9 Common		2	3		20
10 Vcc (5 volts)					
11 Analog #1 out		7 (If zoom)	9 (Zoom)		2
12 Analog #2 out		7 (If focus)	8 (focus)		3
13 RC Servo Out 1					
14 RC Servo Out 2					
15 Head power + out					
16 Head power - out					

Tie pins 1 & 2 to 7

for position control

Controller Connectors

1) Green 7pin – Head Control – LEMO EGG1B307CLL

Pin	Function	Wire Color (Cable)	
1	Common	Brown	
2	RS-422 RXD	Red	
3	RS-422 RXD!	Orange	
4	RS-422 TXD	Yellow	
5	RS-422 TXD!	Green	
6	24 VDC +	Blue	Power from Cinema Pro
7	24 VDC -	Violet	Power from Cinema Pro

2) Gray 8pin – Digital Lens Control – LEMO EGG1B308CLL

Pin	Function
1	Common
2	#1 RS-232 RXD
3	#1 RS-232 TXD
4	+5 VDC
5	24 VDC -
6	#2 RS-232 RXD
7	#2 RS-232 TXD
8	24 VDC +

3) White 5pin – Analog Lens Control – LEMO EGG1B305CLL

1	Common
2	Motor disable
3	Zoom analog signal
4	Focus analog signal
5	+5 VDC