

Varizoom
www.varizoom.com

Cinema Pro JR-K4

Operations Manual



BEFORE YOU START, READ THESE WARNINGS

- 1) NEVER PLUG POWER DEVICES OTHER THAN THOSE SUPPLIED BY VARIZOOM INTO THE SYSTEM. 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) DO NOT MODIFY THE SUPPLIED CABLES OR ATTEMPT TO DISASSEMBLE THE HEAD.
- 3) 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.
- 4) THE ADVANCED CONTROLLER DOES NOT REQUIRE SEPARATE POWER, IT RECEIVES POWER THROUGH THE GREEN-CODED CONTROL CABLE THAT CONNECTS TO THE HEAD. THE “AUX” POWER JACK ON THE ADVANCED CONTROLLER IS ONLY UTILIZED IN WIRELESS CONFIGURATIONS AND SHOULD ONLY BE CONNECTED TO A VARIZOOM POWER SUPPLY.
- 5) DO NOT OPERATE THE HEAD WITH AN UNBALANCED LOAD (i.e., with the camera’s weight extremely off-center either horizontally or vertically).
- 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 for film and video cameras. It has a wide variety of operating modes: manual operation from joystick, **motion control style record and playback**, **“go to mark” preset framing***. Software upgrade options are also available for additional features such as intervalometer, camera sync, PC data share, and additional recorded takes and mark points.

The Cinema Pro JR’s optional advanced Controller can give the user all input and programming capabilities and has a joystick for pan & tilt control. The Advanced Controller also works in concert with two optional control input devices: Pan Bars for broadcast-style operation or Hand Wheels for cinema-style operation.

The Jibstick remote is a simpler, less expensive controller designed for one-man jib operation. The jibstick only offers joystick pan & tilt with smoothing and speed control.

The Cinema Pro JR’s lens interface controls 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, position or speed based analog, pulse width type RC servos, and LANC.

***Go to marks and presets are only available when using the advanced controller.**

1. Basic Setup

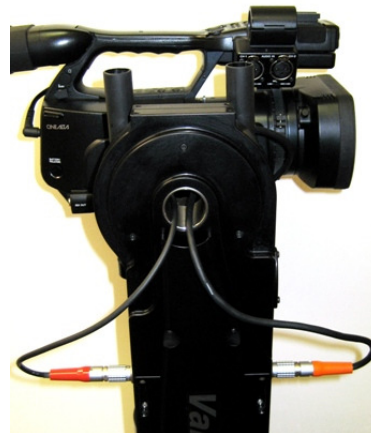
-Secure the head to crane, tripod, or solid mounting beam

-Plug the FACTORY POWER SUPPLY into AC mains

-Connect XLR cable between head and FACTORY POWER SUPPLY

-Plug green control cable into the head and the jack marked “CTRL” on the Advanced Controller (or Jibstick, if applicable)

-If applicable, connect camera power (red) and lens control (orange) and route the cables through the tilt axis port hole to connect to your camera

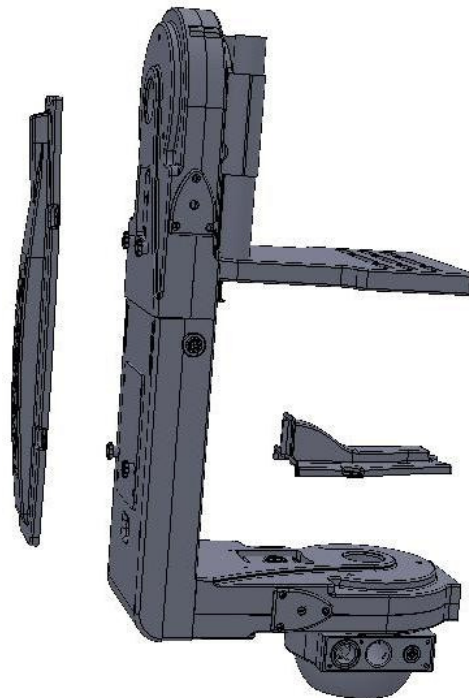


cables

-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

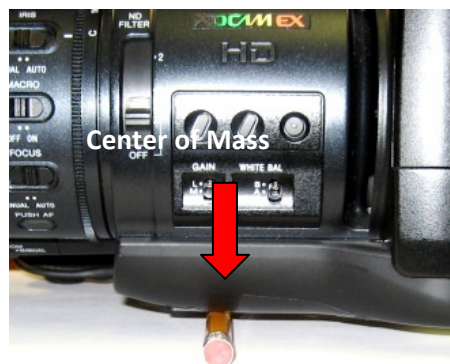
Connect the TOC 3A (3 axis lens drive box) between the orange 16-PIN lens control connector located on the head, and the grey “control” connector located on the TOC 3A. Connect the Lens drive motors to the appropriate connection according to their function (zoom, focus, iris)

If using a Preston MDR2*

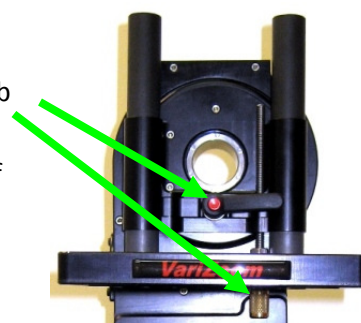
Connect the MDR2 box between the 16-pin LEMO connector on the front of the head, and the appropriate command connected on the MDR2 box (refer to the manufacturer’s instruction manual for proper connections). Connect the Preston lens motors according to their manufacturer’s instruction manual

***** Make sure that the MDR2 is not connected to any power source (including batteries) prior to connecting to the head. This can result in damages to the control console. The MDR2 will get all necessary power directly from the head. *****

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 brass knob on the underside of the platform to precisely raise or lower it. 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 layout and functions



USB Connector- This is where you will connect the jibstick to a Windows computer for advanced parameter settings. A Windows based GUI is provided with the jibstick

Communication connector (Green)- Connect this to the communication cable, and connect the other end of the communication cable to the green connector on the CinemaPro Head. This cable runs communication as well as power, so make sure that there is XLR power connected to the CinemaPro

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

Analog lens control connector- White- Connects peripheral analog lens controller to control zoom and focus through the Cinemapro head

Digital lens control connector- Gray- Connects peripheral digital lens controller to control zoom focus or iris through the Cinemapro head

Set pan axis soft limits- To set digital limits for the pan axis, move the position where you want the limit to be, then press the button that corresponds with the direction moved (left button for the left limit, and right button for the right limit). The light will turn green when the limit is set, and turn red when the head has reached that limit. Press the lit button again to disable the soft limit.

Set tilt axis soft limits- To set digital limits for the tilt axis, move the position where you want the limit to be, then press the button that corresponds with the direction moved (top button for the top limit, and lower button for the bottom limit). The light will turn green when the limit is set, and turn red when the head has reached that limit. Press the lit button again to disable the soft limit.

Joystick for pan and tilt operation- Move the joystick in the direction you wish the head to move. The response direction can be changed with the response direction switches.

Communication- Indicates that there is two-way communication between the CinemaPro head and jibstick

Connection- Indicates that there is a connection between the CinemaPro head and jibstick

Sync- Indicates that a the CinemaPro head is ready to respond to the jibstick

Power- Indicates that power is established between CinemaPro head and jibstick

Joystick for pan and tilt operation- When using an analog ENG lens, this will adjust where the “center” voltage is. If the lens is plugged into the CinemaPro head’s lens card, and zoom is drifting, adjust “center” voltage until the zoom stops moving.

Pan/tilt smoothing- Adjusts the amount of smoothing for both the pan and tilt axes. The higher the smoothing is set the more “delay” there will be in response to the joystick.

Pan speed and Tilt Speed- Adjusts the maximum speed for the pan motor and tilt motor.

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

Advanced parameter settings

Varizoom provides a Windows based GUI for changing advanced parameters. Connect to the jibstick with the provided USB connector, then connect to PC. After both are connected, click "Get Data From Controller". You can now make changes in the GUI. Click "Send Data To Controller" to make your changes live.

Lens Control

(When using a digital lens, select the manufacturer. When using an analog lens, 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

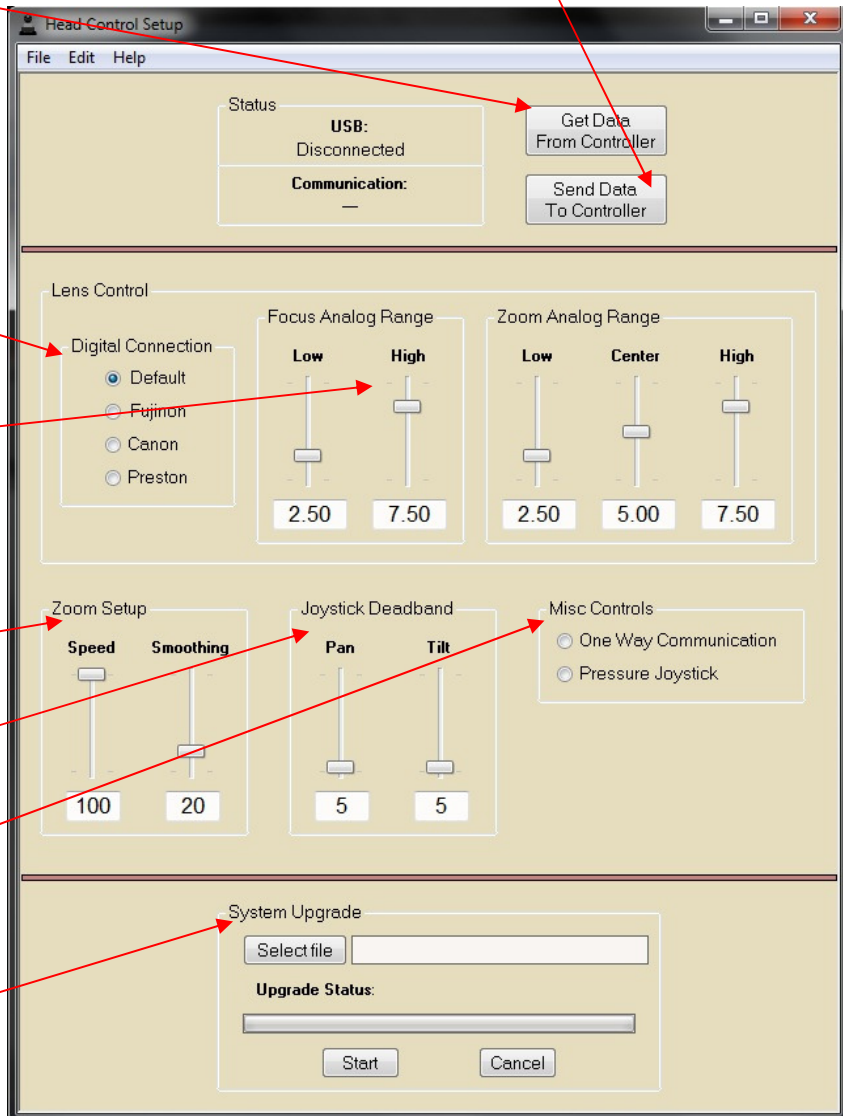
This will control how far the joystick must be moved before it responds

Misc Controls

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

System Upgrade

If a software upgrade is available, you will be able to reprogram the jibstick here.



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 that there aren't any soft limits set too close together. Disable all soft limits, and then try again.
- 3) Power down the system, unplug the XLR connector, wait for a few seconds, re-plug everything back in, power it back up, then try again.

Pan and Tilt moves too slowly or PanBar range is limited

- 1) Check both speed settings. If the speed is dialed too slowly it will appear to have no response at all.

Head is "jerky" or too responsive

- 1) Turn down motor speed.
- 5) If you have been using the advanced controller, check to make sure that the servo tuning in the "tuning" menu is set to the factory setting. Selecting "reset all" will return this to the factory preset.

Note: When the jibstick is plugged into the head, it will default to the servo tuning of the last advanced controller that used with the head.

4. Options and Specs

Additional Software- The controller can be upgraded to have more position marks, intervalometer mode, and additional recorded moves.

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, brass, bronze and delrin 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)

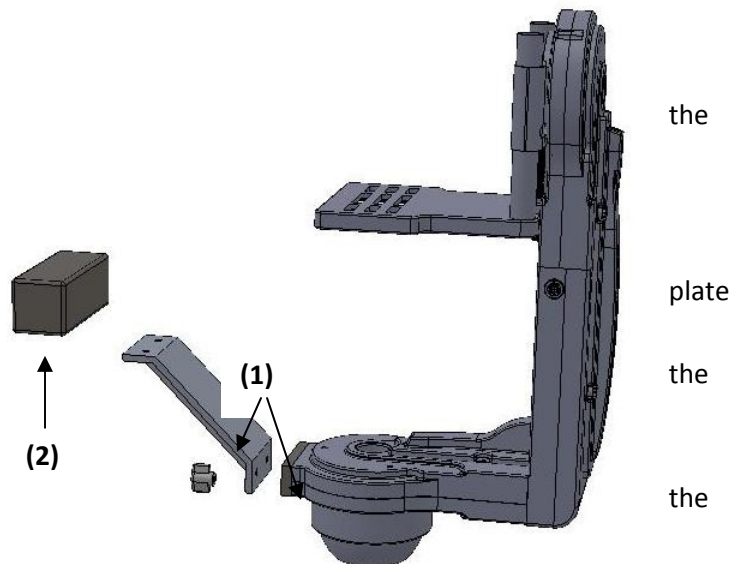
Jib Counterweight Option

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.

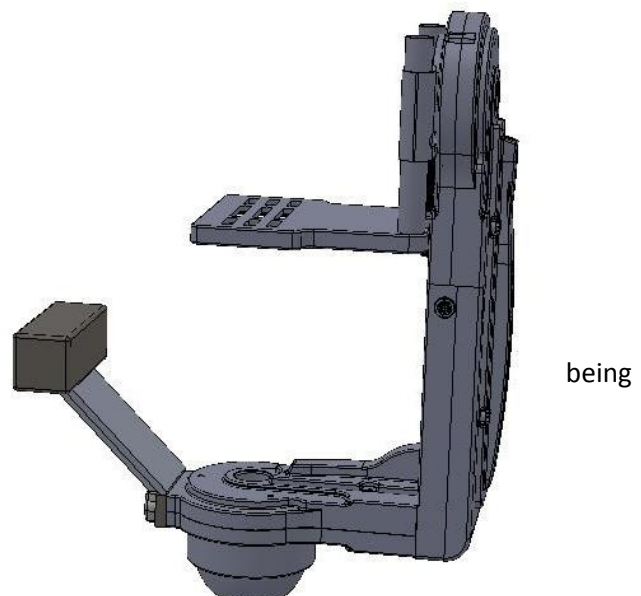
Attaching the counterweight is simple. Before attaching the counterweight, fix the head to your jib.

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



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-adapter 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	Focus
12	Analog #2	Zoom
13	RC Servo #1	Focus
14	RC Servo #2	Zoom
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

Advanced Controller Connectors (if applicable)

1) Auxiliary power input

1	Center 18 to 36 volts input
2	Common

2) "CTRL" - Head Control (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 from Cinema Pro
7	24 VDC -	Violet	Power from Cinema Pro

2) "SERIAL" - Peripheral Connector (Gray) - 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) "ANALOG" - Panbars Option Zoom & Focus Input (White) - EGG1B305CLL

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

4) "WHEELS" - Wheels and Panbars Option Input (Blue) - EGG1B306CLL

1	Common
2	+5 VDC
3	Pan encoder signal "A"
4	Pan encoder signal "B"
5	Tilt encoder signal "A"
6	Tilt encoder signal "B"

5) "BLOOP" - Sync & Bloop - Fischer D103A056-130

1	Common - Isolated
2	+5 VDC - Isolated
3	Sync In
5	Bloop out #1
7	Bloop out #2

6) "VIDEO SYNC" - BNC

1	BNC signal
2	Isolated common

Jibstick Connectors (if applicable)

1) Cinema Pro Control (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 from Cinema Pro
7	24 VDC -	Violet	Power from Cinema Pro

2) Focus Input - Fischer D103A054-130

1	Common
2	+5 VDC
3	Focus analog signal
4	Zoom analog signal (unused)

Common