



## VR box

- Universal Virtual Box for all the Cartoni encoded heads
- Plug & Play
- Genlock pass-through

### General Information

The VR Box enables the use of the Cartoni encoded Pan and Tilt heads in virtual and augmented reality applications. The box processes the positional data from the encoders and offers a direct interface to lenses with digital output or to external encoders to be mounted on lens.

The box provide a single data stream to the graphics rendering system.

### Technical Data

(Mechanical)

<b>Weight</b>	1.5 kg 3.3 lbs
<b>Temperature Range</b>	-40°/+60°

### Technical Data

(Electrical)

<b>Supply voltage</b>	DC 12-30V
<b>Maximum current consumption</b>	1.5A
<b>Pan/Tilt resolution<sup>1</sup></b>	22 bit absolute (4.194.304 Count/Revolution)
<b>Zoom/Focus resolution</b>	up to 16 bit relative <sup>2</sup>
<b>Communication bus</b>	RS232 Speed: 38400 bps Data: 8 bits Stop: 1 bit Parity: Odd
<b>Communication protocols</b>	Mo-Sys F4 Free-D A2 Free-D D1
<b>Data output frequency without genlock</b>	50 Hz
<b>USB connection</b>	USB A/B cable

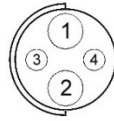
<sup>1</sup> According to the encoders embedded in the head

<sup>2</sup> With external encoder it may vary with the lens diameter.

**Electrical Connections**

**Power input**

Fischer DG.104.A.087.80



<b>1</b>	GND	
<b>2</b>	+12 / 30 V	Input
<b>3</b>	Reserved	
<b>4</b>	Reserved	

**Genlock**

BNC connectors

<b>IN</b>	Genlock input signal	Input
<b>OUT</b>	Genlock output signal	Output

**USB**

Programming port

USB-B port used for firmware updates

**Lens**

Lemo ECG.2B.314

Connector for digital lenses; use with these accessory parts:

- A346 – Canon digital lens (Hirose 20 pin)
- A347 – Fujinon ENG digital lens (Hirose 20 pin)
- A358 – Fujinon Box lens (Serial DB9)

**Zoom & Focus Encoders**

Lemo ECG.0B.304



<b>1</b>	GND	
<b>2</b>	+5V	Output
<b>3</b>	Channel A	Input
<b>4</b>	Channel B	Input

**Pan & Tilt Encoders**

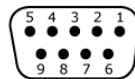
Lemo ECG.1B.307



<b>1</b>	GND	
<b>2</b>	Reserved	
<b>3</b>	+5V	Output
<b>4</b>	Data +	Input
<b>5</b>	Data -	Input
<b>6</b>	Clk +	Output
<b>7</b>	Clk -	Output

**Serial Data Output**

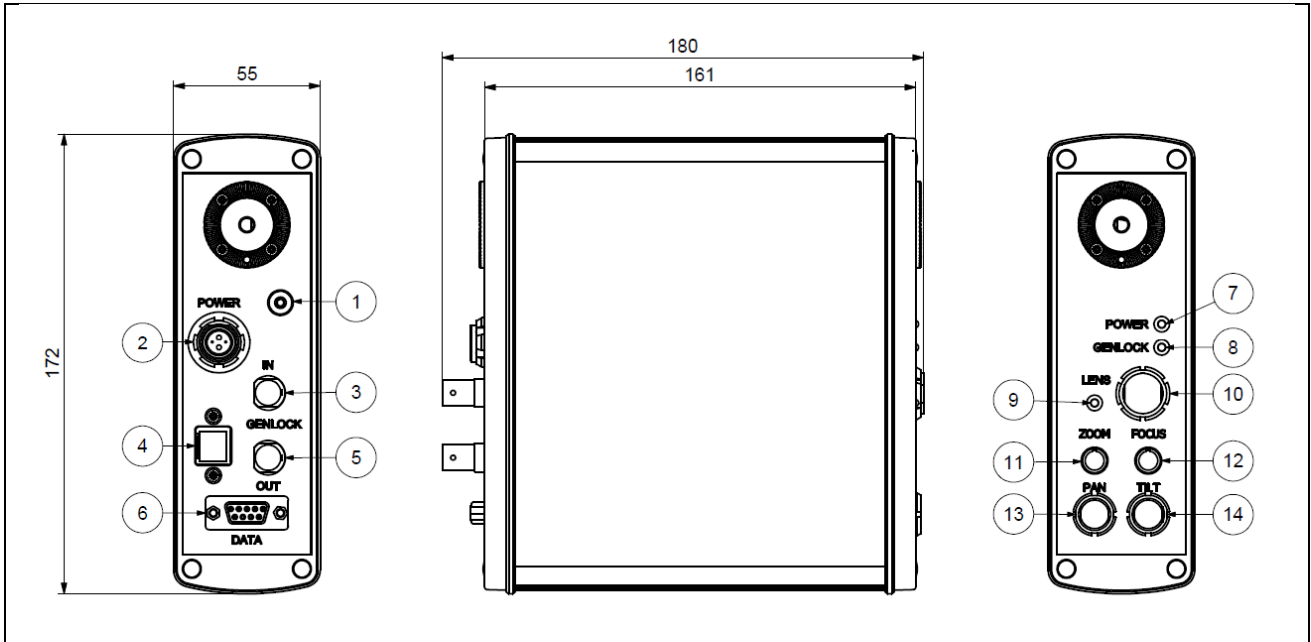
Female DB9



<b>2</b>	TX Data	Output
<b>3</b>	RX Data	Input
<b>5</b>	GND	
<b>7</b>	TX Data + <sup>3</sup>	Output
<b>8</b>	RX Data + <sup>3</sup>	Input

<sup>3</sup> Available only for RS422

**Dimensions**



1	Reset button	8	Led genlock
2	Power input +12/+24V	9	Led digital lens
3	Genlock input	10	Digital lens connection
4	USB programming port	11	Zoom external encoder
5	Genlock Output	12	Focus external encoder
6	Serial data output	13	Pan encoder input
7	Led power	14	Tilt encoder input

**Functions**

1. Press this button to reset the box
2. Connect here the power supply
3. Input for Genlock (bi-level, tri-level)
4. USB-B for firmware updates
5. Genlock pass-through from input
6. Serial data output RS232
7. This led is steady ON when the device is correctly powered
8. This led is steady ON when a compatible genlock signal is correctly connected
9. This led is steady ON when a compatible<sup>4</sup> digital lens is connected
10. Digital input for Zoom and Focus<sup>4</sup>
- 11, 12. Zoom and Focus input from external encoders
- 13, 14. Pan and Tilt input from Cartoni encoded head

<sup>4</sup> see lens compatibility section

**Setup**

1. Connect Pan and Tilt encoders from the head to (13), (14)
2. Connect Digital lens to (10) or external encoders to (11), (12)
3. Connect the genlock signal to (3)
4. (Optional) Connect other device's genlock to (5)
5. Connect the serial cable to the computing rendering machine
6. As last step connect the power supply to (2)

**Lens compatibility**

Fujinon	Canon																																																																				
<p>ENG / EFP Portable Lenses</p> <table style="border-collapse: collapse; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td> </tr> <tr> <td>H</td><td>A</td><td>19</td><td>x</td><td>7</td><td>B</td><td>E</td><td>ZD</td> </tr> <tr> <td>X</td><td>S</td><td>20s</td><td>x</td><td>6</td><td>B</td><td>RM</td><td>-T</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>K</td> </tr> </table>	1	2	3	4	5	6	7	8	H	A	19	x	7	B	E	ZD	X	S	20s	x	6	B	RM	-T								K	<p>(ENG/EFP Lens)</p> <table style="border-collapse: collapse; text-align: center;"> <tr> <td>HJ</td><td>40x</td><td>10</td><td>B</td><td>I</td><td>A</td><td>S</td><td>D</td><td>-V</td> </tr> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td>XJ</td><td>100x</td><td>9.3</td><td>B</td><td>IE</td><td></td><td></td><td></td><td>-D</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table> <p>(Studio / Field Lens)</p>	HJ	40x	10	B	I	A	S	D	-V	1	2	3	4	5	6	7	8	9	XJ	100x	9.3	B	IE				-D									
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ENG/EFP: Lens control type (7): <b>RM</b> or <b>RD</b>	ENG/EFP: Zoom/Focus Control (6): <b>R, A, T</b> Special Function 1 (8): <b>E</b>																																																																				

**Ordering Information**

A348	Virtual Box
A346	Canon digital connection to Hirose HR25A
A347	Fujinon digital connection to Hirose
A358	Fujinon digital connection to DB9
A349	12V power supply
A356	VR box support
A355	Serial cable
A351	Cable for head encoders