

RovoCam

UltraHD HDBaseT Camera System

Installation & Operation Guide

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Contacting Support

When calling for support, have all information at hand prior to calling. To contact AJA for sales or support, use any of the following methods:

Telephone: +1.530.271.3190

FAX: +1.530.271.3140

Web: <http://www.aja.com>

Support Email: support@aja.com

Sales Email: sales@aja.com

Chapter 1: RovoCam System Introduction



System Overview

RovoCam is AJA's first compact block camera for industrial, corporate, security, ProAV and broadcast applications. Gorgeous UltraHD and HD imagery is obtained with superior Sony® optics with built-in 12x optical zoom and 20x digital zoom (with Sony's Super Resolution Zoom), auto and manual focus. Housed in a rugged machined aluminum case with multiple mounting options, RovoCam delivers the flexibility, power and feature set to accommodate a variety of applications.

A single Cat5e/6 cable carries all uncompressed video, two-channel audio, VISCA camera control, and power for the simplest installation ever due to RovoCam's integrated HDBaseT interface. Delivering this much functionality and power with single cable connectivity dramatically simplifies the installation, camera setup and footprint requirements.

RovoRx-HDMI, the companion receiver unit, offers the simplest reception option for RovoCam with an HDMI output to drive displays, and all video/audio signals, power, and control offered over HDBaseT. RovoRx-HDMI is an UltraHD/HD HDBaseT Receiver with integrated HDMI video and audio outputs specifically designed to receive RovoCam's output. This allows one to receive the RovoCam's output up to 100m (328') away from the camera itself and display the gorgeous output on a display wherever needed. The HDBaseT connector on RovoRx-HDMI further allows for camera interaction, power, and control, all over a single Cat5e/6 cable, greatly simplifying workflows and systems integration.

NOTE: *The HDBaseT format uses RJ45 connectors but does not support Ethernet. HDBaseT is point-to-point signal transport.*

Figure 1. RovoCam System Diagram, with Audio and Computer

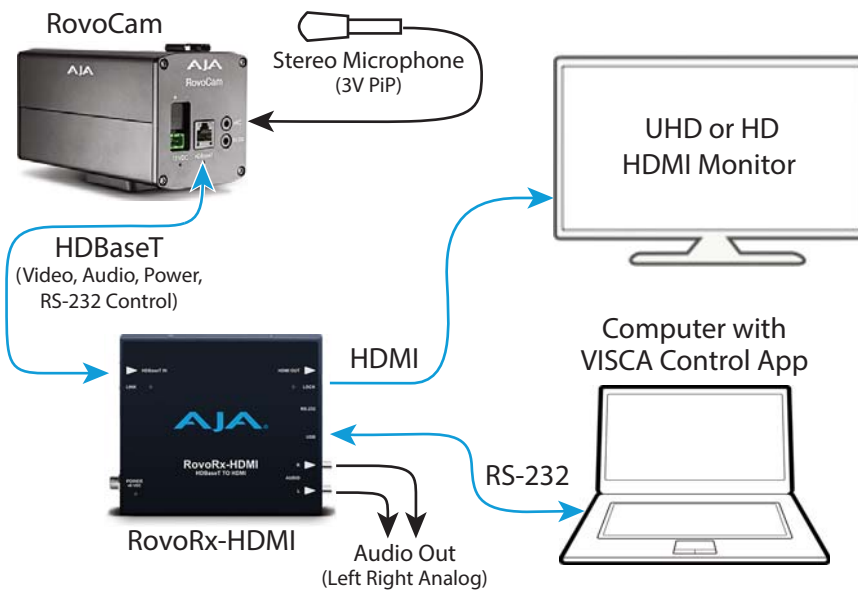
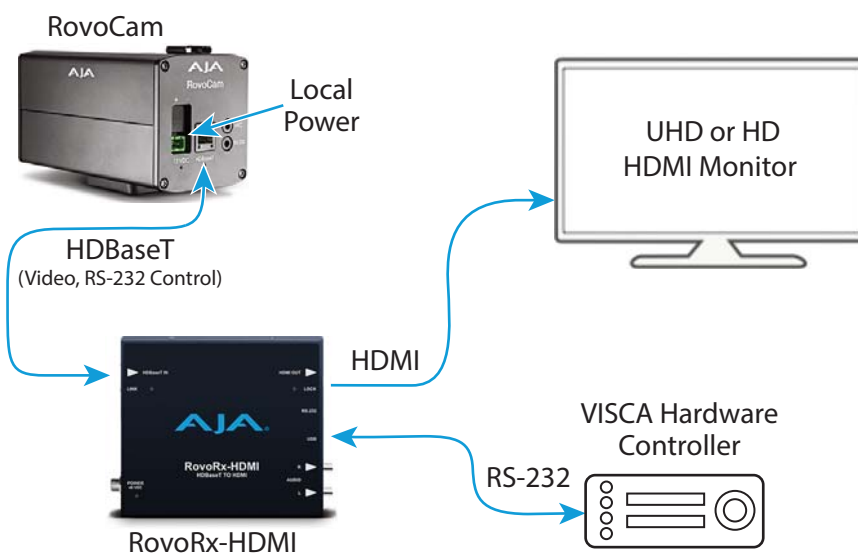


Figure 2. RovoCam System Diagram, with Hardware Controller



Features

Hardware

- RovoCam**
 - UltraHD and HD video output (see ["Camera Supported Video Formats" on page 18](#))
 - Sensor
 - Progressive scan CMOS, 1/2.3 type Exmor R™, 3840x2160
 - 8.93 Mega Pixels
 - Zoom Lens

- Focal length: 3.9mm to 46.8mm
- F1.8 to 2.0
- Horizontal Angle of View
- 12x optical zoom
- 20x digital zoom
- 1 x HDBaseT connector (RJ45)
- 1 x Stereo mini audio input (3V PIP)
- 1 x 3.5mm TRS connector RS-232
- 48v DC power in
- See [“RovoCam Specifications” on page 18](#) for more information

- RovoRx-HDMI**
- 1 x UltraHD and HD HDMI 1.4b output
 - 2 x RCA analog audio outputs
 - 1 x USB for firmware upgrades
 - 1 x RS-232 for RovoCam control via SONY VISCA
 - 1 x HDBaseT connector (RJ45)
 - 48VDC power supply (included)

Software

- RovoCam accepts VISCA camera control
- AJA is currently developing easy to use camera control software.
- A variety of third-party software controllers are available. See [“System Operation” on page 16](#) for more information.

Warranty

- Three year AJA warranty on RovoCam

What’s In The Boxes?

When you unpack your product you’ll find the following components:

- RovoCam Box**
- AJA RovoCam camera
 - Phoenix/Euroblock style plug-in power adapter (optional use with local power)
- RovoRX-HDMI Box**
- AJA RovoRX-HDMI Mini-Converter
 - 48VDC power supply with AC cable

In addition the following item is available from AJA as part of the HB-CABLE-KIT:

- 3.5mm TRS to DB9 adapter cable

NOTE: This cable is also widely available for purchase from other sources.

Please save all packaging for future shipping.

In This Manual

- Chapter 1** Introduces the RovoCam system, briefly describing the components, features, box contents, and system requirements.
- Chapter 2** Describes the RovoCam hardware and connections.

- Chapter 3** Describes the RovoRx-HDMI hardware, connections, and system installation.
- Chapter 4** Describes RovoCam system third-party control software.
- Appendix A** Provides specifications for various aspects of the system.
- Appendix B** Contains important caution, warning, and compliance statements.

Chapter 2: RovoCam

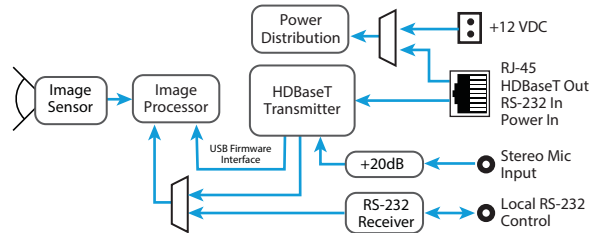


Overview

When using the product, you'll make media cable connections to a variety of equipment based on how the system is being used.

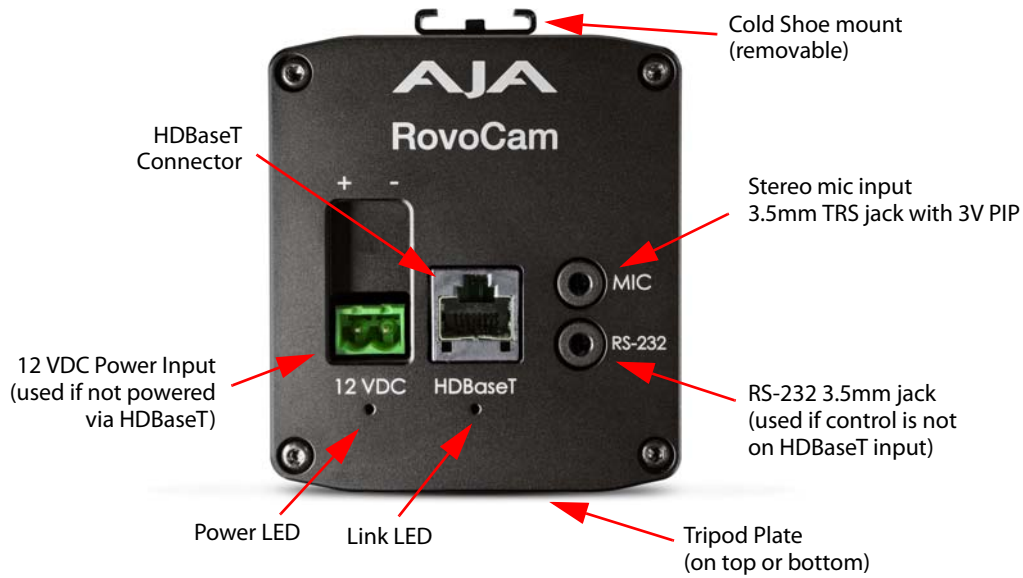
Block Diagram

Figure 3. RovoCam Simplified Block Diagrams



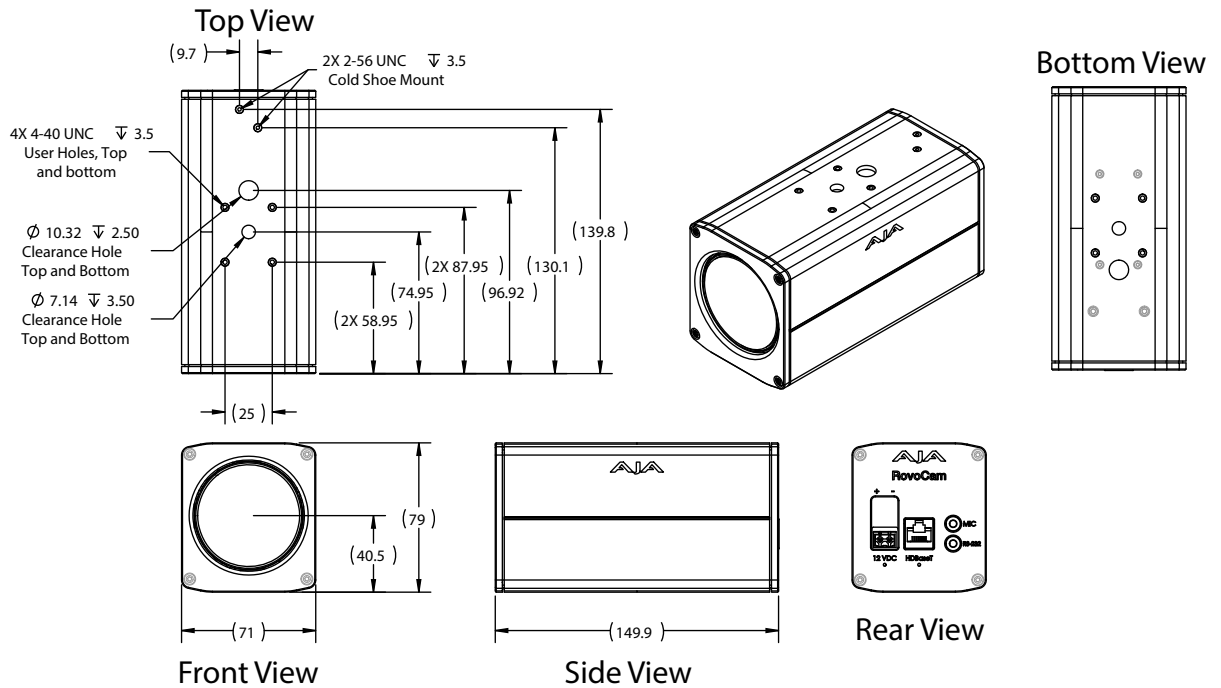
Connectors

Figure 4. RovoCam Rear View



Dimensions

Figure 5. RovoCam Dimensions

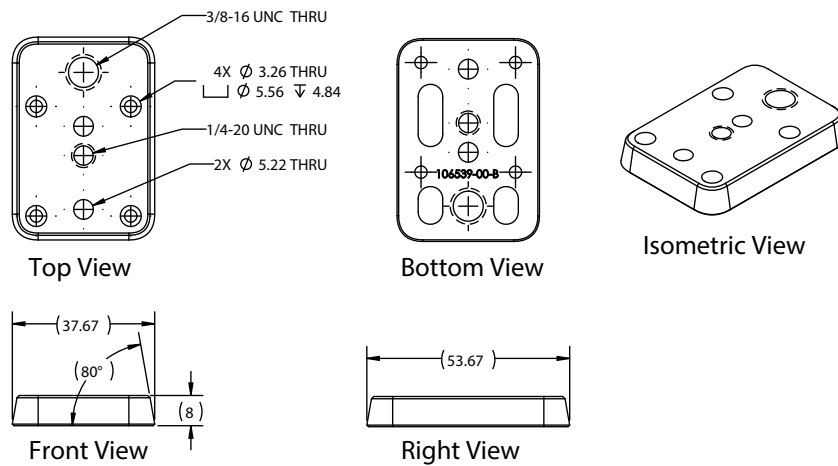


Camera Installation

Tripod Plate

The removable tripod plate can be mounted on the top or bottom of the camera (use the software controlled image flip feature for upside down mounting). The tripod plate has 1/4-20 and 3/8-16 threaded holes and guide pin holes, and is attached to the camera via four 4-40 cap screws, 5/64 hex heads.

Figure 6. Tripod Plate Dimensions



Cold Shoe

The removable cold shoe plate can be mounted on the top of the camera, and can hold a microphone or light. It is held in place with two 2 Phillips head screws.

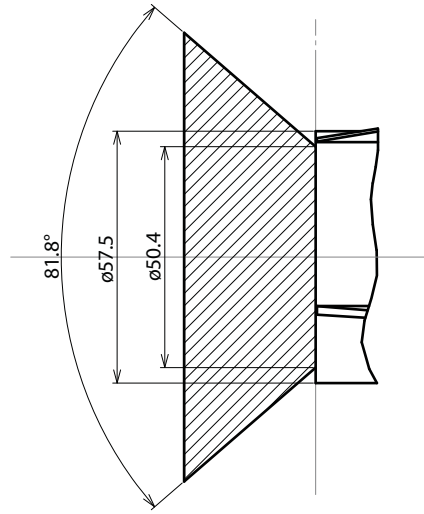
Enclosure

The small block camera outside dimensions are suitable for installation into a variety of environmental enclosures. Examples of compatible enclosures include:

- SONY SNCUNI (indoor use)
- SONY SNCUNIHB/1 (outdoor use)

Eclipse When selecting the housing, refer to the dimensional allowance as shown in [Figure 7](#).

Figure 7. Eclipse Diagram



System Installation

See ["Installation with RovoCam" on page 14](#) for instructions on installing the RovoCam with an RovoRx-HDMI receiver.

Chapter 3: RovoRx-HDMI



Overview

RovoRX-HDMI converts uncompressed HDMI Video/Audio signals up to 4K/UHD for reception via HDBaseT over CAT type twisted pair cable. It can also send and receive RS-232 control signals over the same cable. Video and audio can be received by this device over distances up to 328 feet/ 100 meters on Cat 6a cable. See ["Specifications" on page 18](#) for a complete list of supported formats, frame rates, and CAT cable requirements.

The simple and economical RovoRx-HDMI is designed to pair with the AJA RovoCam camera, to provide video, audio, control and power transmission using a single CAT cable.

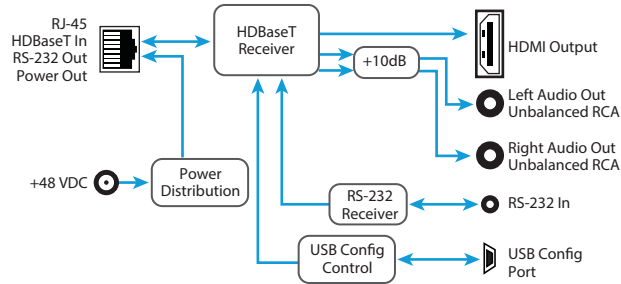
RovoRx-HDMI can also be used with any compatible HDBaseT transmitter, including AJA's HB-T-HDMI and HB-T-SDI Mini-Converters.

Features

- HDBaseT Certified 4K/UHD Signal Extender
- Extend uncompressed 4K, UltraHD or HD HDMI signal up to 100m over Ethernet cable
- RS-232 control on the same RJ45 cable
- 48VDC power supply (included)
- Optional RS232 Cable Kit (HB-CABLE-KIT)
- Two channel unbalanced analog audio outputs, when used with RovoCam and optional stereo microphone
- Up to eight channels of embedded audio when used with a compatible HDBaseT transmitter
- 5-year warranty

Block Diagram

Figure 8. RovoRx-HDMI Simplified Block Diagrams



I/O Connections

Figure 9. RovoRx-HDMI Converters



NOTE: The LINK LED, when green, indicates an active HDBaseT connection.

NOTE: The LOCK LED, when blinking green, indicates a lock to a valid video source. If the LOCK LED is not blinking, the source video is encrypted (RovoCam does not encrypt video).

System Installation

Installation with RovoCam

Typically, installation consists of the following steps:

1. Ensure the RovoRx-HDMI converter is disconnected from power.

2. Connect the RovoCam HDBaseT RJ-45 output to the HDBaseT RJ-45 input connector with an approved CAT cable type and length.
3. Connect the RovoRx-HDMI output to the HDMI input of a destination device (in this example, an HDMI monitor) with an HDMI cable.
4. Connect the threaded 48 VDC power connector to the RovoRx-HDMI, and then connect the provided DC power supply to an AC power source with the supplied cable.

NOTE: The RovoCam camera ships configured for UltraHD 29.97 video format.

5. Power up the HDMI monitor. If the monitor supports the UltraHD 29.97 format, without additional configuration you should see the camera image on the monitor. This confirms the camera and links are working.
6. Connect a control source to the RS-232 input connector, using a 3.5mm TRS cable.
7. Install and configure your third-party control application for operation with the RovoCam system.

Audio Level The RovoCam microphone input is a single ended stereo audio input with a fixed 20dB of gain. The RovoRx has a fixed audio gain of 10dB, giving a system gain of 30dB which will bring a typical microphone output up to line level.

System Ground and Audio When the RovoCam is used with RovoRx, the power provided by RovoRx has 1500V isolation from ground, meaning that the RovoCam is electrically isolated from ground. When RovoCam is used with an external microphone, the microphone is also isolated from ground, and there will be no noise issues. If you use the RovoCam microphone input from source equipment which is grounded it can cause ground loops in the system and unintended noise will be heard on the microphone input. To correct this, the user can ground the RovoCam camera by connecting a ground wire to the negative input of the 12V DC power connection. This will effectively tie the camera to earth ground and eliminate the unwanted noise.

Pairing RovoRx-HDMI with HB-T Transmitters

RovoRx-HDMI can also receive HDBaseT signals up to UltraHD from other HDBaseT transmitters. Examples include AJA's HB-T-SDI and HB-T-SDI model Mini-Converters (but HB-T-SDI does not support UHD).

Up to 8 embedded audio channels (4 stereo pairs) at 24-bit/48 KHz can be carried from input to output on either HDMI/HDMI and SDI/HDMI pairs.

Chapter 4: System Operation

Overview

Because the RovoCam system uses the industry standard SONY VISCA camera control protocol, a wide variety of third- party control solutions are available. Refer to the software providers for specific computer system requirements.

Listed below are some providers, products, and links:

NOTE: Some controllers will require a serial null modem to operate with RovoCam.

RocoSoft

- RocoSoft PTZ tester software, free utility download:
<http://www.rocosoft.com/download/software/RocosoftPTZCameraTester.EXE>
- PTZJoy - PTZ Camera Controller
- PTZJoy Pro- PTZ Camera Controller
- PTZJoy STUDIO- PTZ Camera Controller

Contact <http://www.rocosoft.com/ptz-control-products/broadcasting-ptz-camera-controller-software>

Serial Port Tool

- PTZ Controller (version 3.2)

Contact <http://www.serialporttool.com/PTZ.htm>

Aegis Systems

- Sony Block Camera Controllers

Contact <http://www.aegis-elec.com>

Precautions

Operation

Start the camera control software on your computer after you turn on the camera and the image is displayed.

Operation and Storage Locations

Do not shoot images that are extremely bright (e.g., light sources, the sun, etc.) for long periods of time. Do not use or store the camera in the following extreme conditions:

- Extremely hot or cold places (operating temperature (0° C to +55° C (32° F to 131° F)
- Close to generators of powerful electromagnetic radiation such as radio or TV transmitters
- Where it is subject to fluorescent light reflections
- Where it is subject to unstable (flickering, etc.) lighting conditions
- Where it is subject to strong vibration
- Where it is subject to radiation from laser beams

Care of the Unit

Remove dust or dirt on the surface of the lens with a blower (commercially available).

Other

- Design and specifications are subject to change without notice.
- Do not apply excessive voltage. (Use only the specified voltage.) Otherwise, you may get an electric shock or a fire may occur.
- The CMOS image sensor and IC included in this camera may break if exposed to static electricity. When directly handling this camera, wear an antistatic strap, spread a conductive sheet or similar item under your workbench, and take measures to eliminate static electricity.
- In case of abnormal operation, contact AJA support or the store where you purchased the product.

Phenomena Specific to CMOS Image Sensors

The following phenomena that may appear in images are specific to CMOS image sensors. They do not indicate malfunctions.

Rolling Shutter

As CMOS image sensors use shutters that capture images line-by-line, there is a slight time difference between the top and bottom of an image. As a result, images may appear skewed if the camera is moved.

White Flecks

Although the CMOS image sensors are produced with high-precision technologies, fine white flecks may be generated on the screen in rare cases, caused by cosmic rays, etc.

This is related to the principle of CMOS image sensors and is not a malfunction.

The white flecks especially tend to be seen in the following cases:

- When operating at a high environmental temperature
- When you have raised the master gain (sensitivity)
- When operating in Slow-Shutter mode

Aliasing

When fine patterns, stripes, or lines are shot, they may appear jagged or flicker.

Phenomena Specific to Lenses

Ghosting

If a strong light source (e.g., the sun) exists near the incidence angle of the lens, bright spots may appear in the image due to diffuse reflection within the lens.

Appendix A: Specifications

RovoCam Specifications

Camera Module Sony FCB-ER8300

Camera Supported Video Formats

- 3840x2160p 25, 29.97
- 1920x1080p 50, 59.97
- 1920x1080i 50, 59.97
- 1920x1080i 25 or 29.97 (50, 59.94 fields)
- 1280x720p 50, 59.97
- 720x480p 59.97
- 720x576p 50

Pixel Format

- YUV 4:2:2
- RGB 4:4:4

Sensor

- Progressive scan CMOS, 1/2.3 3840x2160, 8.93 Mega Pixels

White Balance Auto, ATW, Indoor, Outdoor, One push, Manual, Sodium Lamp

Lens

Lens Control Zoom, Focus, Iris, IRCS

Focal length 3.9mm to 46.8mm

F value 1.8 to 2.0

Horizontal Angle of View 70.7 deg (wide), 6.2 deg (tele)

Magnification

- 12x optical zoom
- 2x digital zoom (1080p and below), 1.67x digital zoom (2160p)

Super Resolution Zoom

- UltraHD: 1.67x (max 20x combined with 12x optical zoom)
- HD: 2.0x (max 24x combined with 12x optical zoom)

Focus Auto, Manual, One push trigger mode

Image Processor

- Noise reduction (2D/3D)
- Visibility Enhancer ICR (Day and Night) Slow AE
- High Sensitivity
- Gamma

- Character Generator
- Defog
- Color Enhancement Picture Effect
- Spherical Privacy Zone Masking
- E-Flip

Video Output Digital

- HDBaseT (RJ-45, Requires Receiver Unit)

Performance

Table 1. HD/UHD/4K Video Resolutions and Performance

W x H	Frame Rate	Color Sampling	Max. Cable Length		Max. Bit Depth
			Cat 5e/6	Cat 6a/7	
3840x2160	< 30 fps	4:2:2	70 meters	100 meters	8-bit
1920x1080	< 30 fps	4:2:2	100 meters	100 meters	8-bit
		>30 fps	100 meters	100 meters	8-bit
	>30 fps	4:2:2	100 meters	100 meters	8-bit
1280x720	>30 fps	4:2:2	100 meters	100 meters	8-bit
720x480	>30 fps	4:2:2	100 meters	100 meters	8-bit

Audio Input Analog

1 x 3.5mm TRS Input with 3V PiP (Plug in Power)

Control

- 1 x 3.5mm jack on-camera RS-232 or RS-232 over HDBaseT,
- SONY VISCA protocol
- RS-232/VISCA can also pass the control from the RovoRx-HDMI

User Interface

VISCA Compatible Control Software and Hardware

Physical

Width 2.8" (71mm)

Length 5.9" (149.9mm)

Height Camera only: 3.1" (79mm)
Including tripod mount and cold shoe: 3.6" (91.4mm)

Power Over HDBaseT Conforming to IEEE802.3af-2003 mode A, 6W typical, 8W max
-OR-
10-12Vdc 2 pin pluggable terminal block, 0.6A max, 6W typical, 8W max

Weight 0.7 lbs (0.3 kg)

Safe Operating Temperature Range 0° C to +55° C (32° F to 131° F)

RovoRx-HDMI Specifications

- Video Input** HDBaseT (RJ-45)
- Video Output Digital** HDMI 1.4b (when in use with RovoCam)
- Audio Output Analog** 2-channel unbalanced 2 x RCA connectors
- RS-232** 1 x 3.5mm TRS Input for VISCA camera control.
- USB** 1 x USB for firmware and additional control

Physical

- Width** 4.03" (102.4mm)
- Length** 5.2" (132mm)
- Height** 0.94" (23.9mm)
- Power** • RovoRx-HDMI only: 48V @ 125mA = 6W typical, 48V @ 156mA = 7.5W max
• Powering RovoCam: 48V @ 271mA = 13W typical, 48V @ 312mA = 15W max
- Weight** 2.2 lbs (1kg)

Safe Operating Temperature Range 0° C to +40° C (32° F to 104° F)

Cat Cable Recommendations

The cable types in the table below are recommended for maximum performance reach and full -capacity by the HDBaseT Alliance.

Table 2. Recommended Cables for Ultra-HD video transmission

Type	Manufacturer	URL
CAT7 S/FTP	Teldor	http://www.teldor.com/
CAT6A H/STP	Teldor	http://www.teldor.com/
CAT.7	Earthline	http://products.lappgroup.com/online-catalogue/data-communication-systems-for-ethernet-technology/

Appendix B: Safety and Compliance

Federal Communications Commission (FCC) Compliance Notices

Class B Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15, Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian ICES Statement

Canadian Department of Communications Radio Interference Regulations

This digital apparatus does not exceed the Class B limits for radio-noise emissions from a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications. This Class B digital apparatus complies with Canadian ICES-003.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique respecte les limites de bruits radioélectriques visant les appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada. Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.

European Union and European Free Trade Association (EFTA) Regulatory Compliance

This equipment may be operated in the countries that comprise the member countries of the European Union and the European Free Trade Association. These countries, listed in the following paragraph, are referred to as The European Community throughout this document:

AUSTRIA, BELGIUM, BULGARIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, IRELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MALTA, NETHERLANDS, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, UNITED KINGDOM, ICELAND, LICHTENSTEIN, NORWAY, SWITZERLAND

Declaration of Conformity

Marking by this symbol indicates compliance with the Essential Requirements of the EMC Directive of the European Union 2004/108/EC.



This equipment meets the following conformance standards:

Safety: EN 60065: 2002 + A1: 2006 + A11: 2008 + A2: 2010 + A12: 2011 (GS License)

IEC 60065: 2001 + A1: 2005 + A2: 2010 (CB Scheme Report/Certificate)

Additional licenses issued for specific countries available on request.

Emissions: EN 55032: 2012, CISPR 22: 2008, EN 61000-3-2:2006 +A1:2009 +A2:2009, EN 61000-3-3:2008

Immunity: EN 55103-2: 2009, EN 61000-4-2:2009, EN 61000-4-3:2006+A1:2008+A2:2010, EN 61000-4-4:2004+A1:2010, EN 61000-4-5:2005, EN 61000-4-6:2009, EN 61000-4-11:2004

Environments: E2, E3 and E4

The product is also licensed for additional country specific standards as required for the International Marketplace.




Warning!

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

Achtung! Dieses ist ein Gerät der Funkstörgrenzwertklasse B. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

Attention! Ceci est un produit de Classe B. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.

Recycling Notice

	<p>This symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.</p>
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Korea KCC Compliance Statement

<p>B급 기기 (가정용 방송통신기자재)</p> <p>Class B (Broadcasting Communication Equipment for Home Use)</p>	<p>이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.</p> <p>As an electromagnetic wave equipment for home use (Class B), this equipment is intended to use mainly for home use and may be used in all areas.</p>
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Taiwan Compliance Statement

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

This is a Class B product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438, Class B. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Japanese Compliance Statement

2. Class B ITE

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

VCCI-B

This is a Class B product based on the standard of the VCCI Council (VCCI V-3/2015.04). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

Translated Warning and Caution Messages

The following caution statements, warning conventions, and warning messages apply to this product and manual.





Warning Symbol



Caution Symbol

Before Operation Please Read These Instructions

	<p>Warning! Read and follow all warning notices and instructions marked on the product or included in the documentation.</p> <p>Avertissement ! Lisez et conformez-vous à tous les avis et instructions d'avertissement indiqués sur le produit ou dans la documentation.</p> <p>Warnung! Lesen und befolgen Sie die Warnhinweise und Anweisungen, die auf dem Produkt angebracht oder in der Dokumentation enthalten sind.</p> <p>¡Advertencia! Lea y siga todas las instrucciones y advertencias marcadas en el producto o incluidas en la documentación.</p> <p>Aviso! Leia e siga todos os avisos e instruções assinalados no produto ou incluídos na documentação.</p> <p>Avviso! Leggere e seguire tutti gli avvisi e le istruzioni presenti sul prodotto o inclusi nella documentazione.</p>
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	<p>Warning! Do not use this device near water and clean only with a dry cloth.</p> <p>Avertissement! N'utilisez pas cet appareil près de l'eau et nettoyez-le seulement avec un tissu sec..</p> <p>Warnung! Das Gerät nicht in der Nähe von Wasser verwenden und nur mit einem trockenen Tuch säubern.</p> <p>¡Advertencia! No utilice este dispositivo cerca del agua y límpielo solamente con un paño seco.</p> <p>Aviso! Não utilize este dispositivo perto da água e limpe-o somente com um pano seco.</p> <p>Avviso! Non utilizzare questo dispositivo vicino all'acqua e pulirlo soltanto con un panno asciutto.</p>
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**Warning!**

Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

Avertissement ! Ne bloquez aucune ouverture de ventilation. Suivez les instructions du fabricant lors de l'installation.

Warnung! Die Lüftungsöffnungen dürfen nicht blockiert werden. Nur gemäß den Anweisungen des Herstellers installieren.

¡Advertencia! No bloquee ninguna de las aberturas de la ventilación. Instale de acuerdo con las instrucciones del fabricante.

Aviso! Não obstrua nenhuma das aberturas de ventilação. Instale de acordo com as instruções do fabricante.

Avviso! Non ostruire le aperture di ventilazione. Installare in conformità con le istruzioni del fornitore.

**Warning!**

Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Avertissement ! N'installez pas l'appareil près d'une source de chaleur telle que des radiateurs, des bouches d'air de chauffage, des fourneaux ou d'autres appareils (amplificateurs compris) qui produisent de la chaleur.

Warnung! Nicht in der Nähe von Wärmequellen wie Heizkörpern, Heizregistern, Öfen oder anderen Wärme erzeugenden Geräten (einschließlich Verstärkern) aufstellen.

¡Advertencia! No instale cerca de fuentes de calor tales como radiadores, registros de calor, estufas u otros aparatos (incluidos amplificadores) que generan calor.

Aviso! Não instale perto de nenhuma fonte de calor tal como radiadores, saídas de calor, fogões ou outros aparelhos (incluindo amplificadores) que produzam calor.

Avviso! Non installare vicino a fonti di calore come termosifoni, diffusori di aria calda, stufe o altri apparecchi (amplificatori compresi) che emettono calore.

**Warning!**

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.

Avertissement! Protégez le cordon d'alimentation pour que l'on ne marche pas dessus ou qu'on le pince, en particulier au niveau des prises mâles, des réceptacles de convenance, et à l'endroit où il sort de l'appareil.

Warnung! Vermeiden Sie, dass auf das Netzkabel getreten oder das Kabel geknickt wird, insbesondere an den Steckern, den Steckdosen und am Kabelausgang am Gerät.

¡Advertencia! Proteja el cable de energía para que no se le pise ni apriete, en especial cerca del enchufe, los receptáculos de conveniencia y el punto del que salen del equipo.

Aviso! Proteja o cabo de alimentação de ser pisado ou de ser comprimido particularmente nas fichas, em tomadas de parede de conveniência e no ponto de onde sai do dispositivo.

Avviso! Proteggere il cavo di alimentazione in modo che nessuno ci cammini sopra e che non venga schiacciato soprattutto in corrispondenza delle spine e del punto in cui esce dal dispositivo.

**Warning!**

Unplug this device during lightning storms or when unused for long periods of time.

Avertissement! Débranchez cet appareil pendant les orages avec éclairs ou s'il est inutilisé pendant de longues périodes.

Warnung! Das Gerät ist bei Gewitterstürmen oder wenn es über lange Zeiträume ungenutzt bleibt vom Netz zu trennen.

¡Advertencia! Desenchufe este dispositivo durante tormentas eléctricas o cuando no se lo utilice por largos periodos del tiempo.

Aviso! Desconecte este dispositivo da tomada durante trovoadas ou quando não é utilizado durante longos períodos de tempo.

Avviso! Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore, quali il treppiedi e l'esoscheletro.

**Warning!**

Do not open the chassis. There are no user-serviceable parts inside. Opening the chassis will void the warranty unless performed by an AJA service center or licensed facility.

Avertissement! Ne pas ouvrir le châssis. Aucun élément à l'intérieur du châssis ne peut être réparé par l'utilisateur. La garantie sera annulée si le châssis est ouvert par toute autre personne qu'un technicien d'un centre de service ou d'un établissement agréé AJA.

Warnung! Öffnen Sie das Gehäuse nicht. Keine der Geräteteile können vom Benutzer gewartet werden. Durch das Öffnen des Gehäuses wird die Garantie hinfällig, es sei denn, solche Wartungsarbeiten werden in einem AJA-Service-Center oder einem lizenzierten Betrieb vorgenommen.

¡Advertencia! No abra el chasis. El interior no contiene piezas reparables por el usuario. El abrir el chasis anulará la garantía a menos que se lo haga en un centro de servicio AJA o en un local autorizado.

Advertência! Não abra o chassi. Não há internamente nenhuma peça que permita manutenção pelo usuário. Abrir o chassi anula a garantia, a menos que a abertura seja realizada por uma central de serviços da AJA ou por um local autorizado.

Avvertenza! Non aprire lo chassis. All'interno non ci sono parti riparabili dall'utente. L'apertura dello chassis invaliderà la garanzia se non viene effettuata da un centro ufficiale o autorizzato AJA.

**Warning!**

Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

Avertissement ! Référez-vous au personnel de service qualifié pour tout entretien. L'entretien est exigé quand l'appareil a été endommagé de quelque manière que ce soit, par exemple lorsque le cordon d'alimentation ou la prise sont endommagés, que du liquide a été versé ou des objets sont tombés dans l'appareil, que l'appareil a été exposé à la pluie ou à l'humidité, ne fonctionne pas normalement ou est tombé.

Warnung! Das Gerät sollte nur von qualifizierten Fachkräften gewartet werden. Eine Wartung ist fällig, wenn das Gerät in irgendeiner Weise beschädigt wurde, wie bei beschädigtem Netzkabel oder Netzstecker, falls Flüssigkeiten oder Objekte in das Gerät gelangen, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, nicht ordnungsgemäß funktioniert oder fallen gelassen wurde.

¡Advertencia! Consulte al personal calificado por cuestiones de reparación. El servicio de reparación se requiere cuando el dispositivo ha recibido cualquier tipo de daño, por ejemplo cable o espigas dañadas, se ha derramado líquido o se han caído objetos dentro del dispositivo, el dispositivo ha sido expuesto a la lluvia o humedad, o no funciona de modo normal, o se ha caído.

Aviso! Remeta todos os serviços de manutenção para o pessoal de assistência qualificado. A prestação de serviços de manutenção é exigida quando o dispositivo foi danificado mediante qualquer forma, como um cabo de alimentação ou ficha que se encontra danificado/a, quando foi derramado líquido ou caíram objectos sobre o dispositivo, quando o dispositivo foi exposto à chuva ou à humidade, quando não funciona normalmente ou quando foi deixado cair.

Avviso! Fare riferimento al personale qualificato per tutti gli interventi di assistenza. L'assistenza è necessaria quando il dispositivo è stato danneggiato in qualche modo, ad esempio se il cavo di alimentazione o la spina sono danneggiati, è stato rovesciato del liquido è stato rovesciato o qualche oggetto è caduto nel dispositivo, il dispositivo è stato esposto a pioggia o umidità, non funziona correttamente o è caduto.

**Warning!**

Only use attachments and accessories specified and/or sold by the manufacturer.

Avertissement! Utilisez seulement les attaches et accessoires spécifiés et/ou vendus par le fabricant.

Warnung! Verwenden Sie nur Zusatzgeräte und Zubehör angegeben und / oder verkauft wurde durch den Hersteller.

¡Advertencia! Utilice solamente los accesorios y conexiones especificados y/o vendidos por el fabricante.

Aviso! Utilize apenas equipamentos/acessórios especificados e/ou vendidos pelo fabricante.

Avviso! Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore.

Warranty and Liability Information

Limited 5-Year Warranty (RovoRx-HDMI)

AJA Video Systems, Inc. (AJA Video) warrants that this product will be free from defects in materials and workmanship for a period of five years from the date of purchase. If a product proves to be defective during this warranty period, AJA Video, at its option, will either repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, you the Customer, must notify AJA Video of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. The Customer shall be responsible for packaging and shipping the defective product to a designated service center nominated by AJA Video, with shipping charges prepaid. AJA Video shall pay for the return of the product to the Customer if the shipment is to a location within the country in which the AJA Video service center is located. Customer shall be responsible for paying all shipping charges, insurance, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. AJA Video shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than AJA Video representatives to install, repair or service the product, b) to repair damage resulting from improper use or connection to incompatible equipment, c) to repair any damage or malfunction caused by the use of non-AJA Video parts or supplies, or d) to service a product that has been modified or integrated with other products when the effect of such a modification or integration increases the time or difficulty of servicing the product.

THIS WARRANTY IS GIVEN BY AJA VIDEO IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. AJA VIDEO AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. AJA VIDEO'S RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE WHOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER AJA VIDEO OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

Limited 3-Year Warranty (RovoCam)

AJA Video Systems, Inc. (AJA Video) warrants that the product, not including hard-disk based Storage Modules (HDD), will be free from defects in materials and workmanship for a period of three years from the date of purchase. AJA Video warrants that the hard-disk based Storage Modules (HDD), will be free from defects in materials and workmanship for a period of one year from the date of purchase. If a product proves to be defective during this warranty period, AJA Video, at its option, will either repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

To obtain service under this warranty, the Customer must notify AJA Video of the defect before expiration of the warranty period and make suitable arrangements for the performance of service by contacting AJA Video support through the channels set forth

on the support contacts web page at <http://www.aja.com/support/index.php>. Except as stated, the Customer shall bear all shipping, packing, insurance and other costs, excluding parts and labor, to effectuate repair. Customer shall pack and ship the defective product to a service center designated by AJA Video, with shipping charges prepaid. AJA Video shall pay to return the product to Customer but only if to a location within the country in which the AJA Video service center is located.

This warranty shall not apply to any defect, failure or damage caused by negligent, inadequate or improper use, handling or maintenance. Without limiting the foregoing, AJA Video shall not be obligated to furnish service under this warranty or repair any damage or malfunction a) resulting from attempts by personnel other than AJA Video representatives to install, repair or service the product, b) resulting from improper use or connection to incompatible equipment, c) caused by the use of non-AJA Video parts or supplies, d) if the product has been modified or integrated with other products when the effect of such a modification or integration increases the time or difficulty of servicing the product, or (e) resulting from being dropped or otherwise subjected to undue force, exposure to moisture or other corrosive or conductive substances, exposure to strong magnetic fields, use with improperly regulated power supplies, exposure to electric shock, use in temperatures outside the specified operating range, or otherwise failing to treat the product in accordance with the standard of care appropriate to sensitive and delicate electronic equipment.

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THE PRODUCT IS NOT INTENDED, STATED, OR WARRANTED TO OPERATE UNINTERRUPTED OR ERROR-FREE. YOU UNDERSTAND AND ACKNOWLEDGE THAT THE PRODUCT IS NOT INTENDED TO BE USED AS THE SOLE OR PRIMARY DATA SOURCE OR TARGET FOR CRITICAL DATA, AND THAT IT IS YOUR RESPONSIBILITY TO IMPLEMENT REDUNDANT CAPTURE AND BACKUP SYSTEMS AS APPROPRIATE.

Limitation of Liability

UNDER NO CIRCUMSTANCES SHALL AJA VIDEO BE LIABLE IN ANY WAY FOR ANY LOST, CORRUPTED OR DESTROYED DATA, FOOTAGE OR WORK, OR FOR ANY OTHER INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR ANY THIRD PARTY CLAIM, IN CONNECTION WITH THE PRODUCT, WHETHER RESULTING FROM DEFECTS IN THE PRODUCT, SOFTWARE OR HARDWARE FAILURE, OR ANY OTHER CAUSE WHATSOEVER, EVEN IF AJA VIDEO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. AJA VIDEO'S LIABILITY IN CONNECTION WITH THIS PRODUCT SHALL UNDER NO CIRCUMSTANCES EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCT.

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