Vaddio™ CCU Image Controller for Canon® XU-81 and XU-81W Cameras

Part Numbers:
999-4185-000 North America
999-4185-001 International

CCU Image Controller for Canon XU-80/81 - Front

CCU Image Controller for Canon XU-80/81 - Rear Panel

Canon XU-81

Canon XU-81W
with Wiper System

Touchboards

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Overview:

The Vaddio Quick-Connect CCU Controller for the Canon XU Series PTZ Cameras allows the discerning video professional to control the color and shading of the XU Series camera's HD video out. A host of advanced controls are available to accurately and precisely set up a video shoot even in the most challenging places.

CCU Image Controller
1-RU Rack Mount Enclosure

CCU Image Controller Front Panel

The CCU Image Controller is different from Vaddio's previous CCU offerings in that it does not process the HD-SDI video from the camera output, ensuring the video quality and signal integrity of the XU camera. Instead, it controls the camera's DSP functions and provides the most advanced image control available today.

The CCU Image Controller is equipped with Control IN and OUT and can be run in-line with the Vaddio ProductionVIEW HD-SDI and ProductionVIEW HD-SDI MV (with built-in multi-viewer) video consoles or the ProductionVIEW Precision Camera Controller. Using the Vaddio Cat-5 Structured Media Control Cabling Standard (SMCCS), the control signals can be routed over Cat. 5 (Cat-5e or Cat-6) up to and including the distance of 500' (152.4 m).

The CCU Image Controller has many useful features including tally illumination on the front panel which allows the operator to know exactly which camera and CCU is live Program, a variety of auto and manual modes including night mode, and the ability to store scenes for time of day programming and baseline shot set-ups.

Important Safeguards:

Read and understand all instructions and warranty statements before using. Do not operate any device if it has been dropped or damaged. In this case, a Vaddio technician must examine the product before operating. To reduce the risk of electric shock, do not immerse in water or other liquids and avoid extremely humid conditions. Do not connect Power over Ethernet (PoE) cables directly to the RJ-45 ports on the device as damage may result.

General Safeguard: Use only the power supply provided with the system. Use of any unauthorized power supply will void any and all warranties. Please do not cut the secondary side (or the DC side) of the power supply and attempt to extend the power to the camera. The warranty is voided when the cable is cut.

Please do not use "pass-thru" type RJ-45 connectors. These pass-thru type connectors do not work well for professional installations and can be the cause of intermittent connections which, can result in the RS-232 control line failing and locking up, and/or compromising the HSDS™ signals. For best results please use standard RJ-45 connectors and test all cables for proper pin-outs prior to use and connection to Vaddio product.

Intended Use

Before operating the device, please read the entire manual thoroughly. The CCU system was designed, built and tested for use indoors, and with the provided power supply and cabling. The use of a power supply other than the one provided or outdoor operation has not been tested and could damage the device and/or create a potentially unsafe operating condition. The XU-80/81 and XU-80W/81W are waterproof and dust proof and can be used outdoors for traffic monitoring, baseball parks, train stations, outdoor amphitheaters, where the finished product may be used on the air

Save These Instructions

The information contained in this manual will help you install and operate your product. If these instructions are misplaced, Vaddio keeps copies of Specifications, Installation and User Guides and most pertinent product drawings for the Vaddio product line on the Vaddio website. These documents can be downloaded from www.vaddio.com free of charge.

Unpacking:

Carefully remove all of the parts from the shipping box. Unpack and identify the following parts for the CCU Controller Image Packages Listed Below:

CCU Image Controller for XU-81 or XU-81W (North America)
Part Number 999-4185-000

- One (1) Vaddio CCU Image Controller for the XU Series (998-1105-031)
- 2-pin Phoenix-type (Molex 5.0mm Euro style) connector (Tally)
- One (1) 12VDC, 1.0 Amp PowerRite™ Power Supply & US Power Cord
- One (1) Control Adapter (998-1007-232) DE-9F to RJ-45-F
- One (1) User Manual
  Note: Canon XU Series Camera Not Included

CCU Image Controller for XU-81 or XU-81W (International)
Part Number 999-4185-001

- One (1) Vaddio CCU Image Controller for the XU Series (998-1105-031)
- One (1) 12VDC, 1.0 Amp PowerRite Power Supply
- One (1) AC Cord Set for EURO
- One (1) AC Cord Set for UK
- One (1) Control Adapter (998-1007-232) DE-9F to RJ-45-F
- One (1) User Manual
  Note: Canon XU Series Camera Not Included

Image: Front Panel Features and Controls (left to right)

- **Tally Light:**
  The blue LED tally light on the front panel is tied to the tally contacts on the rear panel allowing the user to track which CCU and camera is the live Program in a multi-camera system.

- **LCD Backlit Display:**
  Blue backlit display indicates which mode is active (CCU Control or Bypass for PTZ control). In CCU CONTROL mode, when a rotary encoder is touched, the name of the control being actuated and the value of that assigned parameter will be displayed.

Image: Front Panel Controls Magnified

- **CCU Control/Bypass Off Switch:**
  Blue back-lit switch, lit when activated, blocks the incoming PTZ controls on the RS-232 input and allows the end user to make adjustments to the camera image characteristics. When off or deactivated, PTZ information is throughput to the camera and the front panel controls of the CCU are deactivated to avoid a control issue or latency created by a master control string filtering program.

- **Scene A and B:**
  Two camera adjustment scenes can be stored in the CCU. When illuminated, the scene is activated. To store a scene, the user adjusts the camera to taste and touches and holds the scene button down until the button blinks.

Front Panel Controls *(continued)***:**

Controls (left to right):

- **AF AREA <SHIFT> AF Response:** AF Area can be set to determine what area of the image is to be used for Auto Focus. AF Response is the amount of time or responsiveness that the camera will focus in Auto Mode.

- **AE AREA <SHIFT> AE Response:** AE Area can be set to determine what area of the image is to be used for the Auto Exposure Area. The AE Response sets the Auto Focus sensitivity.

- **Shutter:** Allows user to adjust the shutter speed (default is 1/60). Shutter allows the user to regulate the exposure and maintain desired motion portrayal. Keep the shutter at 1/60 or 1/100 to prevent strobe or flicker when shooting under fluorescent, mercury vapor or halogen lamps. Shutter is only available in manual mode.

- **Shift:** The Shift Button, when lit, assigns the bottom row controls to the encoders and the buttons (excluding the Scene and CCU Control button).

- **WB Mode:** This button toggles through 5 Modes of White Balance (Auto, Preset, Indoor, Outdoor & ATW). Look at display for the mode change and at the monitor to see the qualities of the 5-modes.

- **Master Gain <SHIFT> AGC Max Gain:** Master Gain sets the overall gain level and is available in Manual shooting mode. AGC Max Gain is the maximum level that the Automatic Gain control can be set. Too much gain adds noise, so balance the brightness of the image with the noise for best results.

- **Red Gain <SHIFT> Gamma:** Red Gain adjusts the red shading of the overall image and is available in manual mode only (Preset in WB Mode). Gamma adjusts the mid-range brightness of an image.

- **Blue Gain <SHIFT> AWB Shift:** Blue gain adjusts the blue shading of the overall image and is available in the manual (Preset in WB Mode) mode only. AWB Shift allows the operator to use automatic white balance and manually shift the auto settings to the red or to the blue.

- **Iris/Camera Mode:** 5-Shooting Modes (Auto, Manual, Night Shutter Priority and Iris Priority) to choose between. To make an Iris adjustment the camera is required to be in Manual or Iris priority.

- **Iris or Exposure:** Iris control allows the user to manually set the amount of light hitting the image sensors when the camera is in manual mode. The Exposure control compensates for the exposure and also acts as a brightness control. Exposure can be used in Manual mode only

- **Enhancer or G/L Phase:** The enhancer can improve the shot by revealing details in certain areas of the image. G/L Phase adjusts the phase of the GENLOCK. This is for fine adjustments of the GENLOCK phase.
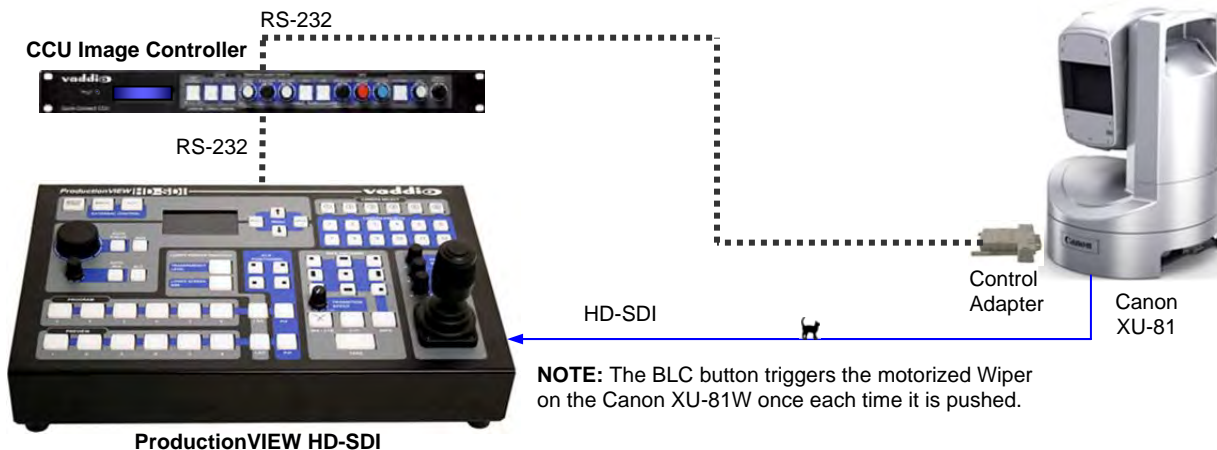
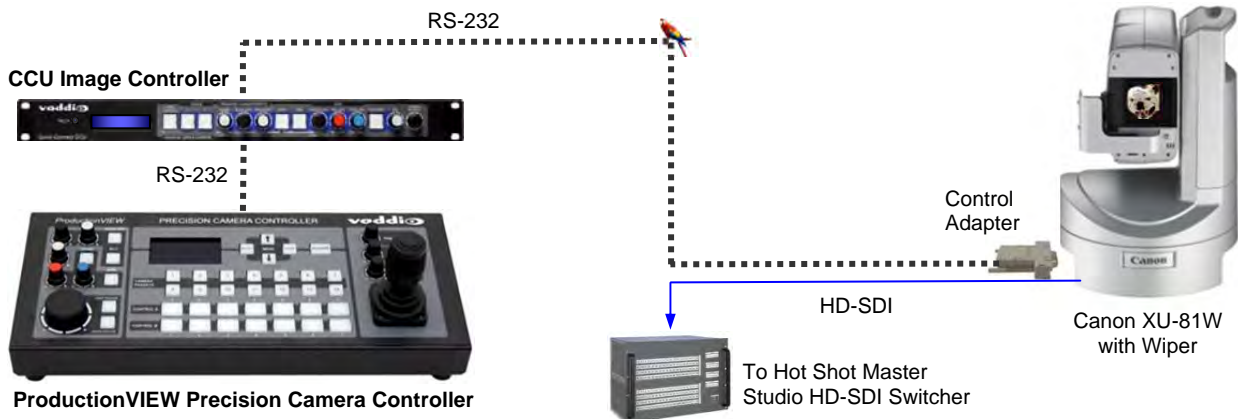## Image: Rear Panel Controls and I/O (from left to right)

- **Power Supply Input:** 12 VDC 1.0 Amp Power Supply Input on a 5.5mm OD x 2.5mm ID connector.

- **RS-232 IN on RJ-45:** RS-232 Input from ProductionVIEW or PTZ controller. Daisy Chain control is not supported.

- **RS-232 OUT on RJ-45:** RS-232 on RJ-45 provides for bi-directional control to the camera.

- **Tally on 2-pin Phoenix-type connector:** Contact closure illuminates the LED on front panel allowing indication of which CCU/camera combination is the live Program in a multi-camera/CCU installation.

- **Camera Settings Dip Switch:** The CCU Controller has an 8-position dip switch on the rear panel to allow for different modes of functionality and future functionality. **For the Canon XU Series cameras, Dip Switch #3 should be in the UP position and all other switches should be in the down position.**

Basic XU-81 System Connectivity Examples
Image: XU-81 with Quick-Connect CCU Controller and ProductionVIEW HD-SDI Console

NOTE: The BLC button triggers the motorized Wiper on the Canon XU-81W once each time it is pushed.

Image: XU-81W with CCU Image Controller and ProductionVIEW Precision Camera Controller

NOTE: The BLC button triggers the motorized Wiper on the Canon XU-81W once each time it is pushed.

Compliance and CE Declaration of Conformity

MADE IN THE USA

CCU Image Controller

FCC Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device.

Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.

ICES-003 Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

European Compliance

This product has been evaluated for Electromagnetic Compatibility under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Standard(s) To Which Conformity Is Declared:
EMC Directive 89/336/EEC

EN 55022A: September 1998, A1 October 2000 - Conducted and Radiated Emissions

EN 55024: 1998 + Amendment A1: 2001 - Electromagnetic Compatibility - Immunity

EN 61000-4-2	Electrostatic Discharge Requirements
EN 61000-4-3	Radiated Electromagnetic Field Requirement
EN 61000-4-4	Electrical Fast Transients / Burst Requirements
EN 61000-4-5	Surge Requirements
EN 61000-4-6	Conducted Immunity Requirements
EN 61000-4-8	Power Frequency Magnetic Field Requirements
EN 61000-4-11	Voltage Dips, Interrupts and Fluctuations Requirements

Warranty Information:
(See Vaddio Warranty, Service and Return Policies posted on vaddio.com for complete details):

Hardware* Warranty: Two (2) year limited warranty on all parts and labor for Vaddio manufactured products. Vaddio warrants its manufactured products against defects in materials and workmanship for a period of two years from the day of purchase, to the original purchaser, if Vaddio receives notice of such defects during the warranty. Vaddio, at its option, will repair or replace products that prove to be defective. Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.

Exclusions: The above warranty shall not apply to defects resulting from improper or inadequate maintenance by the customer, customers applied software or interfacing, unauthorized modifications or misuse, mishandling, operation outside the normal environmental specifications for the product, use of the incorrect power supply, modified power supply or improper site operation and maintenance. OEM products and products manufactured by other companies are excluded and are covered by the manufacturer's warranty

Vaddio Customer Service: Vaddio will test, repair, or replace the product or products without charge if the unit is under warranty. If the product is out of warranty, Vaddio will test then repair the product or products. The cost of parts and labor charge will be estimated by a technician and confirmed by the customer prior to repair. All components must be returned for testing as a complete unit. Vaddio will not accept responsibility for shipment after it has left the premises.

Vaddio Technical Support: Vaddio technicians will determine and discuss with the customer the criteria for repair costs and/or replacement. Vaddio Technical Support can be contacted through one of the following resources: e-mail support at support@vaddio.com or online at www.vaddio.com.

Return Material Authorization (RMA) Number: Before returning a product for repair or replacement request an RMA from Vaddio's technical support. Provide the technician with a return phone number, e-mail address, shipping address, product serial numbers and original purchase order number. Describe the reason for repairs or returns as well as the date of purchase. See the General RMA Terms and Procedures section for more information. RMA's are valid for 30 days and will be issued to Vaddio dealers only. End users must return products through Vaddio dealers. Include the assigned RMA number in all correspondence with Vaddio. Write the assigned RMA number clearly on the shipping label of the box when returning the product. All products returned for credit are subject to a restocking charge without exception.

Voided Warranty: The warranty does not apply if the original serial number has been removed or if the product has been disassembled or damaged through misuse, accident, modifications, use of incorrect power supply, use of a modified power supply or unauthorized repair.

Shipping and Handling: Vaddio will not pay for inbound shipping transportation or insurance charges or accept any responsibility for laws and ordinances from inbound transit. Vaddio will pay for outbound shipping, transportation, and insurance charges for all items under warranty but will not assume responsibility for loss and/or damage by the outbound freight carrier. f the return shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. *Contact your carrier immediately*.

Products Not Under Warranty: Payment arrangements are required before outbound shipment for all out of warranty products.

Other General Information:
Care and Cleaning
Do not attempt to take this product apart at any time. There are no user-serviceable components inside.
- Do not spill liquids in the product
- Keep this device away from food and liquid
- For smears or smudges on the product, wipe with a clean, soft cloth
- Do not use any abrasive chemicals.

Operating and Storage Conditions:
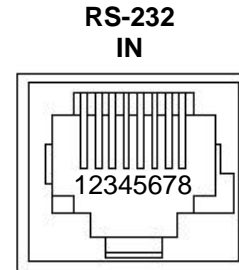Do not store or operate the device under the following conditions:
- Temperatures above 40°C (104°F) or temperatures below 0°C (32°F)
- High humidity, condensing or wet environments
- In Swimming Pools, near drains and skimmers
- In inclement weather
- Dry environments with an excess of static discharge
- In outer space (transportation issue)
- Under severe vibration

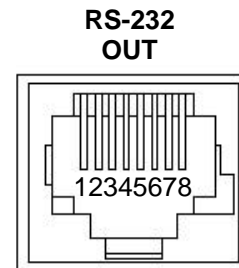## Appendix 1: Cable Pin-outs for CCU Image Controller

Table: RS-232 IN - RJ-45

Pin #	Function	Pairs
Pin - 1	N/A	Not Used
Pin - 2	N/A	Not Used
Pin - 3	N/A	Not Used
Pin - 4	N/A	Not Used
Pin - 5	N/A	Not Used
Pin - 6	Digital GND	
Pin - 7	RXD (from TXD of control source)	4
Pin - 8	TXD (to RXD of control source)	4

**RS-232
IN**

Table: RS-232 OUT - RJ-45

Pin #	Function	Pairs
Pin - 1	N/A	Not Used
Pin - 2	N/A	Not Used
Pin - 3	N/A	Not Used
Pin - 4	N/A	Not Used
Pin - 5	N/A	Not Used
Pin - 6	Digital GND	
Pin - 7	TXD (to RXD of control source)	4
Pin - 8	RXD (from TXD of control source)	4

**RS-232
OUT**

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