UCI-2000-S PROTOCOL TRANSLATOR

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Document Number 81-9059-0545-0 Revision B

Printed in the United States of America.

As of publication, this product had not completed FCC compliance testing.

Original Printing and Text March 2003

About This Manual

This manual provides detailed instructions for the installation, operation, and maintenance of the PESA UCI-2000-S Protocol Translator.

Warnings, Cautions, and Notes

Warning statements identify conditions or practices that can result in personal injury or loss of life.

Caution statements identify conditions or practices that can result in damage to equipment.

Notes contain information important to the correct installation, operation, or maintenance of the equipment.

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Chapter 1 – Introduction

The PESA UCI-2000-S protocol converter is designed to provide an interface between Sony and PESA routing switchers and control systems. The UCI-2000-S can operate in one of two distinct modes, allowing PESA routing matrices to be controlled by a Sony control system and control panels or allowing Sony routing matrices to be controlled by a PESA 3500 family control system.

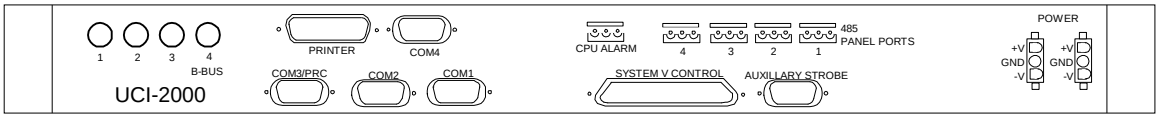


Figure 1. UCI-2000-S Rear Panel

Chapter 2 - Installation

This section details UCI-2000-S Mainframe installation procedures. The following topics are discussed:

- Receipt Inspection
- Unpacking
- Location
- Mounting
- Cabling
- Plug-In Card Installation
- Power Supply Installation

The UCI-2000-S contains static sensitive devices. Care should be used when it is necessary to handle the internal circuit cards. It is recommended that a ground wrist strap and grounding mat be used before attempting any equipment installations.

2.1 Receipt Inspection

The UCI-2000-S Mainframe was tested and inspected prior to leaving the factory. Upon receipt, inspect the equipment for shipping damage. If any damage is found, contact the carrier and PESA immediately and save all packing material.

2.2 Unpacking

The UCI-2000-S Mainframe is comprised of 1RU chassis/backplane assembly, one UCI2000 protocol translator card and one SRU Power Supply. Prior to discarding packing material compare the parts received against the packing list. Carefully inspect the layers of packing material for any components that may have been overlooked during the initial unpacking.

2.3 Location

The UCI-2000-S Mainframe may be located anywhere power is available. However, units should be mounted as close as possible to their associated equipment to minimize cable runs. Installation should be in an area where the ambient temperature does not exceed 40°C (104°F) inside the equipment rack.

2.4 Mounting

The UCI-2000-S Mainframe is rack mounted in a standard 19” equipment rack. Sufficient space must be provided behind the rack to allow for the control and power cables. All mounting holes should be utilized and mounting hardware tightened securely. As with all equipment installed in a rack, the bottom screw on each side should be installed before proceeding with the remainder of the screws. Then all screws should be securely tightened. Support the UCI-2000 Mainframe's bottom while installing it in the rack. Figure 2 illustrates chassis installation in the equipment rack.

To install a UCI-2000 Mainframe in an equipment rack, follow these steps:

1. Align the chassis with the slotted opening in the rack.
2. Install the bottom screws first.
3. Install the two top screws
4. Tighten all four screws securely.

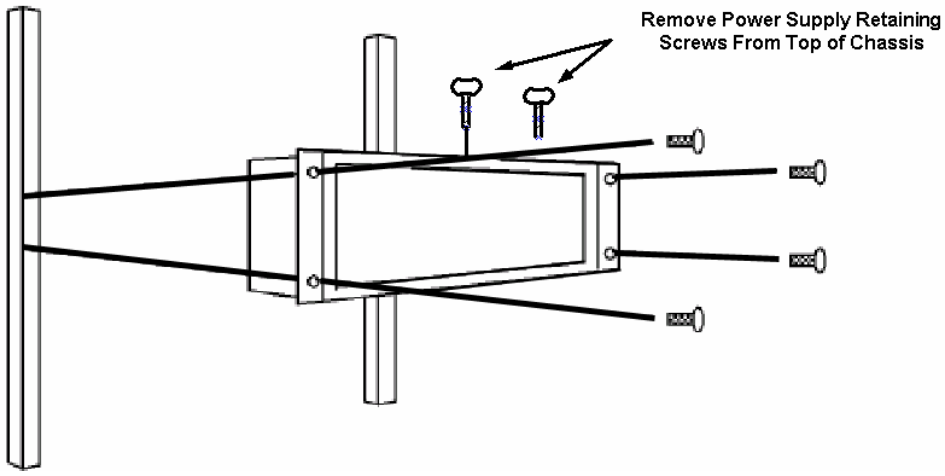


Figure 2. Chassis Mounting

2.5 Cabling

All cables should be strain relieved and secured to racks or other supporting structures. Failure to provide adequate cable support can result in cables separating from connectors. If cable runs are to be stored under an elevated floor, they should be tied to the racks as a guide. If cables are run along the floor, do not allow them to lay in the work area behind the racks. Stepping or tripping on the cables may result in connections being pulled free or wire breakage inside the insulation. The UCI-2000-S Mainframe should be installed in the equipment rack prior to attaching cables.

Use the following rules when cabling the UCI-2000-S Mainframe:

1. Lay all cables in their intended positions, separating control from power cables wherever possible.
2. Provide proper support for each cable during the cabling process. The use of tie-wraps is recommended, as shown below in Figure 3.

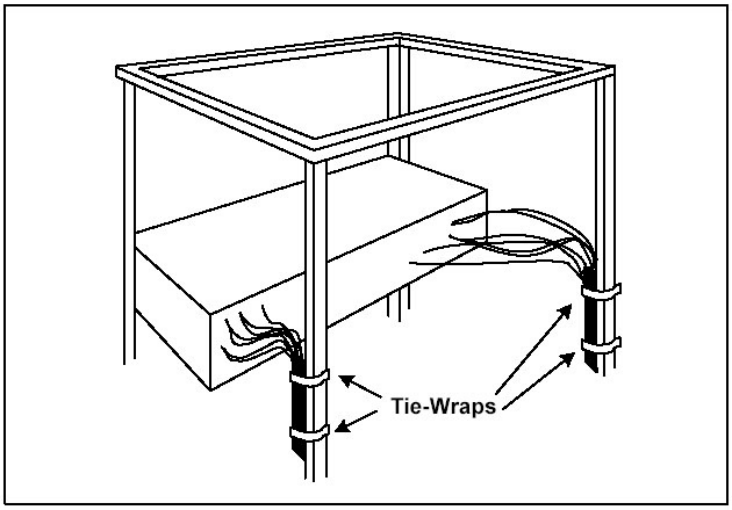


Figure 3. Cabling

2.6 Plug-In Card Installation

To install a board in the UCI-2000-S Mainframe, take the following steps:

1. Align the board with a set of circuit card guides in the center of the frame.
2. Carefully push the board into the frame until the circuit card connector makes initial contact with the backplane connector. At this point, firmly but carefully push the board into the frame while making sure the connectors are properly aligned. Continue pushing the board until it is in place and the connectors are firmly mated.

2.7 Power Supply Installation

The SRU Power Supply connects to the rear of the chassis through a 3 pin M-N-L connector. Loop through power is available which allows you to connect to either power connection.

Chapter 3 – Setup and Operation

3.1 Sony to PESA Mode

The Sony to PESA control mode allows the UCI-2000-S to control up to eight levels of PESA PRC-based routing switchers from the Sony control system. Each of the eight additional levels can support a matrix size of 256 x 256 inputs and outputs. These control levels need not occupy a consecutive block of levels in the level space of the Sony control system but cannot share an existing level with a Sony router. Figure 4 depicts a typical system block diagram of the Sony to PESA control mode.

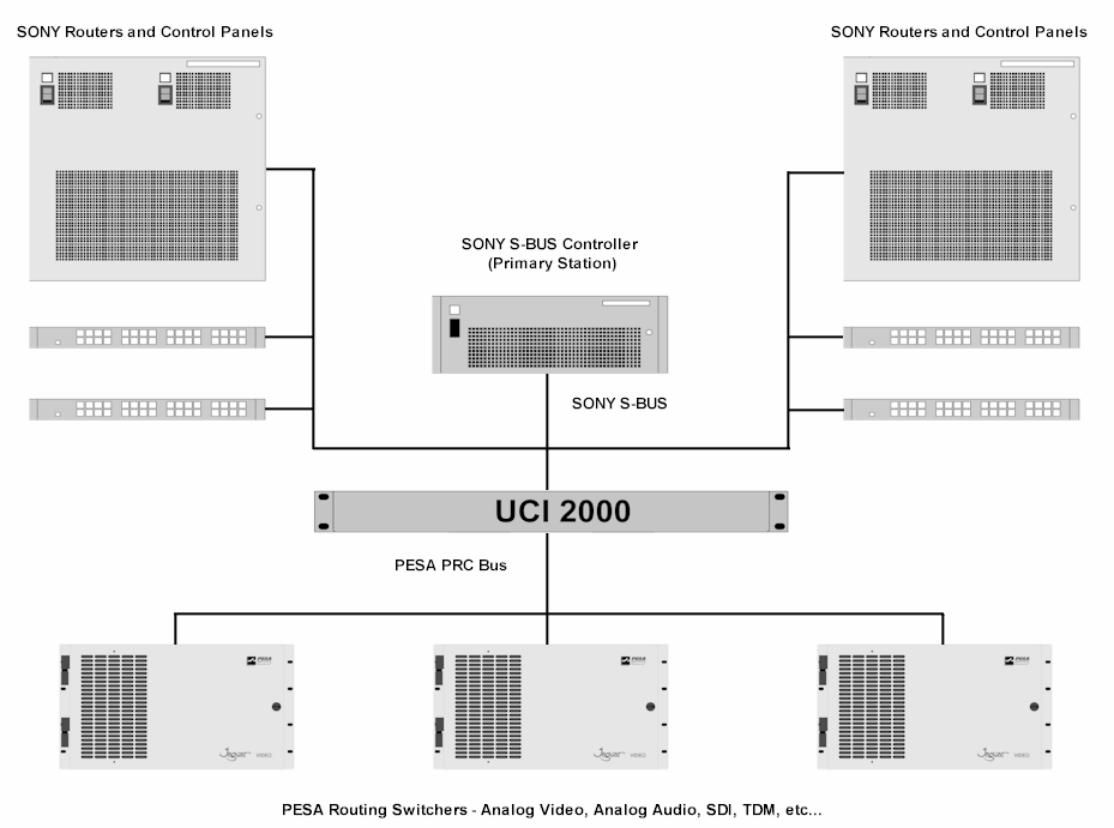


Figure 4. Sony to PESA Mode

The UCI-2000-S receives commands from the Sony controller using the coaxial S-BUS data link. Currently, the UCI-2000-S only supports the default S-BUS data rate of 312k bps and does not support the new high-speed S-BUS that operates at 1M bps.

All commands received from the Sony controller are translated by the UCI-2000-S and sent to the controlled PESA routing switchers over the PESA PRC Control Bus. Appropriate status messages are returned to the Sony controller in response to all crosspoint takes.

3.2 PESA to Sony Mode

The PESA to Sony control mode allows the UCI-2000-S to control up to eight levels of Sony S-BUS based routing switchers from a PESA 3500 family control system. Each of the eight additional levels can support a matrix size of 256 x 256 inputs and outputs. These control levels must occupy a consecutive block in the level space of the PESA control system and cannot share an existing level with a PESA router. Figure 5 depicts a typical system block diagram of the PESA to Sony control mode.

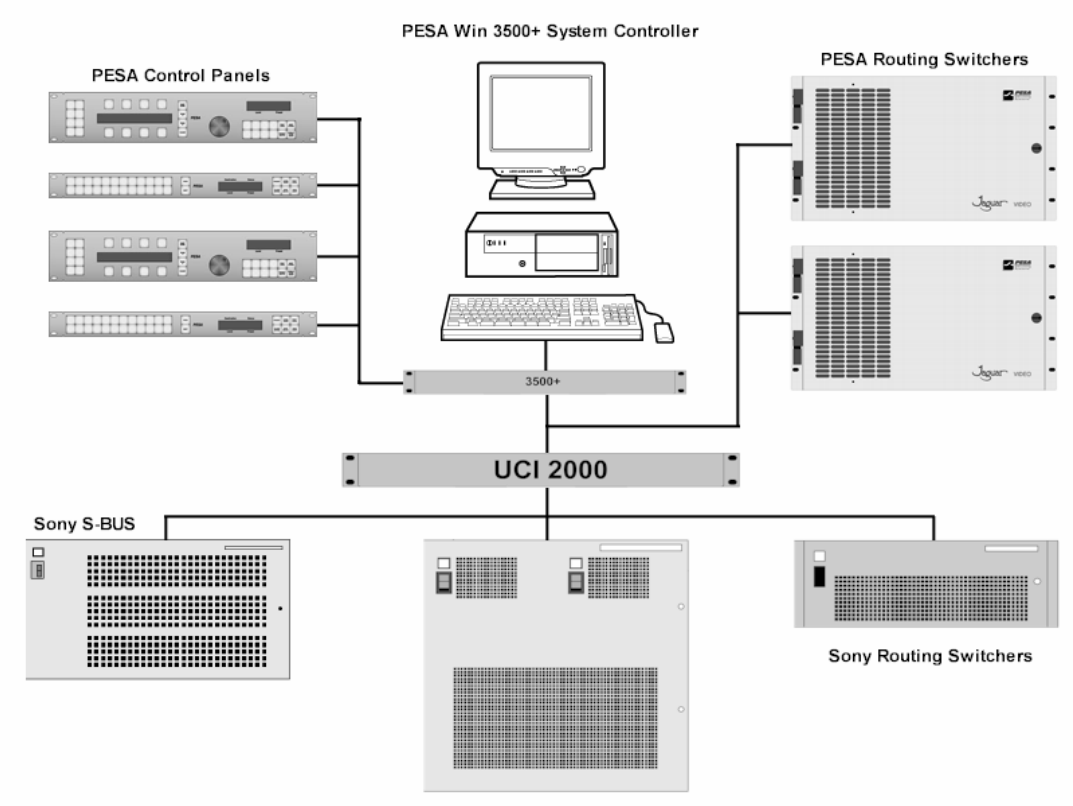


Figure 5. PESA to Sony Mode

The UCI-2000-S receives commands from the PESA 3500 family control system through its PRC Bus connection. These commands are then translated into appropriate S-BUS commands and transmitted to the Sony routing switchers. One of the Sony routing switchers must be configured as an S-BUS "Primary Station" to enable S-BUS communications between the UCI-2000-S and the Sony routers.

3.3 Hardware Configuration

3.3.1 Setting the Operating Mode

Dip switch S1 on the UCI-2000-S PC board is used to set the card's operating mode. Available operating modes for the UCI-2000-S are listed in Table 1 below.

Table 1. UCI2000-S Operating Modes

Operating Mode	S1-8	S1-7	S1-6	S1-5	S1-4	S1-3	S1-2	S1-1
Controlling Sony Routers	Off	Off	Off	Off	Off	Off	Off	**On**
Controlling PESA Routers	Off	Off	Off	Off	Off	Off	**On**	Off
Factory Test Mode	**On**	**On**	**On**	**On**	**On**	**On**	**On**	Off
Board Reset	**On**	**On**	**On**	**On**	**On**	**On**	**On**	**On**
All other settings are Reserved								

3.3.2 Setting the Sony S-BUS Station Address

For all operating modes, dip switch S3 is used to set the station address (ID) of UCI-2000-S on the Sony S-BUS data link. The ID is set using a binary representation using switches 1-8. Valid station addresses are 2-254. Each device on the S-BUS data link must have its own unique station address not shared with another device. ID 1 is reserved for the Primary Station Controller.

Table 2. S-BUS Station Addresses

S-BUS Address	S3-8	S3-7	S3-6	S3-5	S3-4	S3-3	S3-2	S3-1
ID 0 (Reserved)	Off	Off	Off	Off	Off	Off	Off	Off
ID 1 (Reserved)	Off	Off	Off	Off	Off	Off	Off	**On**
ID 2	Off	Off	Off	Off	Off	Off	**On**	Off
ID 3	Off	Off	Off	Off	Off	Off	**On**	**On**
ID 4	Off	Off	Off	Off	Off	**On**	Off	Off
ID 5	Off	Off	Off	Off	Off	**On**	Off	**On**
ID 6	Off	Off	Off	Off	Off	**On**	**On**	Off
ID 7	Off	Off	Off	Off	Off	**On**	**On**	**On**
ID 8	Off	Off	Off	Off	**On**	Off	Off	Off
Up to…								
ID 252	**On**	**On**	**On**	**On**	**On**	**On**	Off	Off
ID 253	**On**	**On**	**On**	**On**	**On**	**On**	Off	**On**
ID 254	**On**	**On**	**On**	**On**	**On**	**On**	**On**	Off
ID 255 (Reserved)	**On**	**On**	**On**	**On**	**On**	**On**	**On**	**On**

Currently, the UCI-2000-S only supports the default S-BUS data rate of 384k bps and does not support the new high-speed S-BUS that operates at 1M bps. If a newer Sony HDS-X series router or BKPF-R70A control card is used as the S-BUS Primary station, please ensure that the dip switch that sets the S-BUS data rate is configured to use the 312k bps setting.

3.3.3 Setting the Control Levels

Sony To PESA Mode:

Switches 1 – 8 of dip switch S4 set the control levels of the PESA matrices that the UCI-2000-S is controlling using a bit-mapped fashion (bit per level) representation. For example: turn on switch 2 for level 2, switch 3 for level 3, and so on. If more than one PESA level is being controlled, the level numbers do not have to be consecutive. For example, the PESA matrices can operate on levels 2 and 5 by turning on switches 2 and 5 on S4.

The UCI-2000-S will not currently support being set for level numbers greater than 8 in the Sony control system. Please contact the factory if level settings above 8 are required.

PESA To Sony Mode:

Switches 1 – 4 of dip switch S2 set the starting (base) strobe number of the controlled Sony matrices using a binary representation according to the following table. Valid level numbers are 1 – 15. (ON is to the right when viewing from above and the rear connectors are at the top of the board). Please note that Sony routers cannot share a level with a PESA PRC router (i.e. expansion of an existing level) and must exist as a contiguous block of levels.

Table 3. Base Control Level of Sony Routers

Starting Level #	S2-4	S2-3	S2-2	S2-1
Level 1	Off	Off	Off	**On**
Level 2	Off	Off	**On**	Off
Level 3	Off	Off	**On**	**On**
Level 4	Off	**On**	Off	Off
Level 5	Off	**On**	Off	**On**
Level 6	Off	**On**	**On**	Off
Level 7	Off	**On**	**On**	**On**
Level 8	**On**	Off	Off	Off
Level 9	**On**	Off	Off	**On**
Level 10	**On**	Off	**On**	Off
Level 11	**On**	Off	**On**	**On**
Level 12	**On**	**On**	Off	Off
Level 13	**On**	**On**	Off	**On**
Level 14	**On**	**On**	**On**	Off
Level 15	**On**	**On**	**On**	**On**

Switches 5, 6 and 7 of S6 set the number of controlled Sony matrices according to the following table:

Table 4. Number of Controlled Sony Levels

S2-5	S2-6	S2-7	Function
Off	Off	Off	UCI Controls 8 Levels
On	Off	Off	UCI Controls 1 Levels
Off	**On**	Off	UCI Controls 2 Levels
On	**On**	Off	UCI Controls 3 Levels
Off	Off	**On**	UCI Controls 4 Levels
On	Off	**On**	UCI Controls 5 Levels
Off	**On**	**On**	UCI Controls 6 Levels
On	**On**	**On**	UCI Controls 7 Levels

Dip switch S2 switches 8-10 are reserved for factory settings and should be turned OFF.

Because of limitations that may exist with the installed base of Sony routers in the field that do not support level settings above 8, all Sony routers are set to start at levels 1-8 regardless of where they "really" exist in the PESA control system. The UCI-2000 automatically offsets the base PRC strobe number when sending commands to the Sony routers and assumes all Sony routers exist starting at level 1 (native to Sony).

The levels (strobes), I/O range and any other specific features of each Sony router are configured by setting dip switches in the Sony routers. Because these settings differ from router to router, please refer to your specific Sony routing switcher manual for further information.

3.3.4 Configuring the On-Board Jumpers

The serial ports in the UCI-2000-S are configured using on-board hardware jumpers. Please configure the jumpers accordingly for the desired operating mode.

Sony To PESA Mode:

J4 - J5 (COM 1: RS-422) PRC Port

J14 - J16 (COM 2: RS-232) Diagnostic Terminal

J7 - J9 (COM 3: RS-422) Not Used

J1: 1 - 3

J10: 1 - 3, 5 - 7

J12: 2 - 3

J13: 1 - 2

PESA To Sony Mode:

J4 - J5 (COM 1: RS-422) Not Used

J14 - J16 (COM 2: RS-232) Diagnostic Terminal

J7 - J9 (COM 3: RS-422) PRC Port

J1: 1 - 2

J10: 3 - 4, 5 - 6

J12: 2 - 3

J13: 1 – 2

3.4 Software Configuration

3.4.1 Sony to PESA Mode

To enable the new PESA routers in the system, they must be added to the configuration in the Sony control system software. The PESA routers are added and configured exactly as if they were Sony routers. Please refer to the Sony routing system instruction manual for more information.

3.4.2 PESA to Sony Mode

To enable the Sony routers in the system, they must be added to the configuration in the PESA Win3500 Plus control system software. The Sony routers are added and configured exactly as if they were PESA routers. Please refer to the Win3500 Plus instruction manual for more information.

3.4.3 All Operating Modes

The UCI-2000-S must be enabled to operate on the S-BUS data link using the station address set on dip switch S3, in either mode of operation, from the maintenance terminal of the Sony S-Bus primary station. This is normally set from menu option F: Set Active Unit Number. However, this may vary from controller to controller. Please refer to the Sony routing system installation manual for more information.

3.5 Cable Connections

3.5.1 Sony to PESA Mode:

COM1: PRC - Connect to PESA Routers

COM2: RS232 Terminal/PC (38400,N,8,1)

COM3: Not Used

SYSTEM V CONTROL (37-pin): Not Used

BNC #4: Connect to Sony S-BUS Controller and Routers

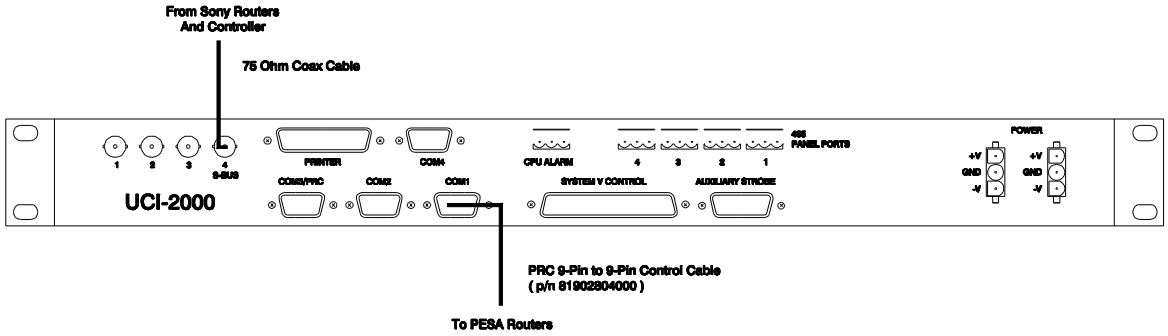


Figure 6. Control Cable Connections, Sony to PESA Mode

3.5.2 PESA to Sony Mode:

COM1: Not Used

COM2: RS232 Terminal/PC (38400,N,8,1)

COM3: PRC - Connect to PESA 3500 family control system

SYSTEM V CONTROL (37-pin): Not Used

BNC #4: Connect to Sony S-BUS Controller and Routers

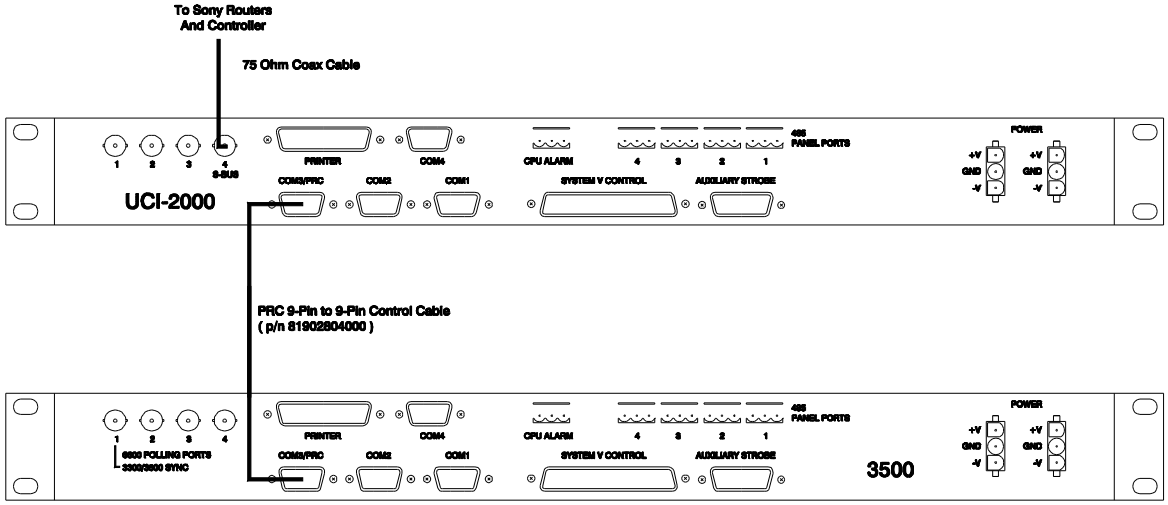
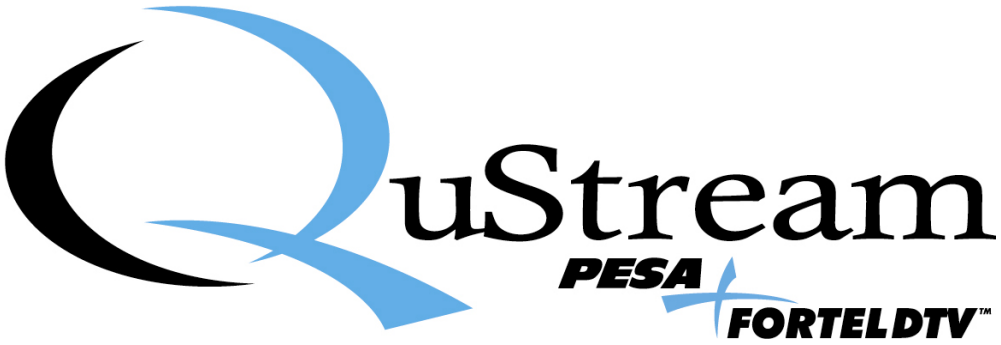


Figure 7. Control Cable Connections, PESA to Sony Mode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