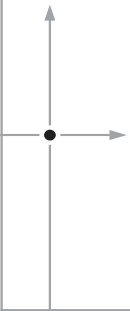


Student Camera System

1-CCD and 3-CCD

Installation and Operations Manual



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Grass Valley Web Site

The www.thomsongrassvalley.com web site offers the following:

Online User Documentation — Current versions of product catalogs, brochures, data sheets, ordering guides, planning guides, manuals, and release notes in .pdf format can be downloaded.

FAQ Database — Solutions to problems and troubleshooting efforts can be found by searching our Frequently Asked Questions (FAQ) database.

Software Downloads — Software updates, drivers, and patches can be downloaded.

Table of Contents

List of Figures x

Meet Your Student System 1

Congratulations On Your Purchase 1

System Components 5

PRM Jacks and Switches 7

Install Your Student System 9

Mounting and Connecting the PRM 9

Configure Your Student System 13

Configuring the Presets and Switches 13

Setting Up the Camera Control Keypad 17

Use Your Student System 21

Changing and Recalling Location Presets 21

Appendix A

Troubleshooting 25

Appendix B

Specifications 29

Appendix C

Typical Student System Diagram 31

Appendix D

Warranty Information 33

Index 35

List of Figures

Front of Programmable Response Module (PRM)	5
1-CCD Camera Control Keypad	6
Power Supply	6
Top View with Cables and Front View of “T” Connector	7
PRM Front Panel	7
PRM Rear Panel	8
PRM Connected to CameraMan	11
Close-Up of Student Using Press-to-Talk Microphone	14
DIP Switch Configuration	15
Keypad Battery Compartment	17
1-CCD and 3-CCD Keypads	21
Wide-Angle Group View	23
Student Zoom View	23
PRM Clearance	29
Typical Student System	31

Chapter 1

Meet Your Student System

Congratulations On Your Purchase

Your new CameraMan Student Camera System takes the distance out of distance learning by combining the flexibility of your 1-CCD or 3-CCD CameraMan camera with distributed preset control.

This manual covers the connection, configuration and use of your new Student Camera System. It is designed to be used in conjunction with the Installation and Operations Manual that came with your CameraMan General Pan/Tilt 1-CCD or 3-CCD camera, and the included Camera Control Keypad Operations Manual. If you have any questions regarding the operation of the keypad, or the connection, configuration or use of the camera, refer to that manual.

You'll see four icons in this manual:



This icon alerts you to important instructions in the operation and maintenance of your Student Camera System.



This icon alerts you to tips or noteworthy suggestions in the operation, use or maintenance of your Student Camera System.



This icon refers you to the 1-CCD General Pan/Tilt Camera installations and operations manual that came with your camera.



This icon refers you to the 1-CCD or 3-CCD Camera Control Keypad installation and operations manual.

The terms Visibly Better, System II, IMAGE, WhisperDRIVE Plus and General Pan/Tilt Camera System, and Student Camera System are registered trademarks of Grass Valley, Inc. in the United States of America. The terms CameraMan and Grass Valley are registered logos in the United States of America. Federal law prohibits any commercial use of these registered trademarks and logos.

The manufacturer reserves the right to change specifications and warranty at any time without notice or obligation.

Refer all Warranty and Servicing to the Grass Valley Consumer Center listed in the back of the manual that came with your 1-CCD or 3-CCD camera.

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Product Description

The CameraMan Student Camera System is a robotic camera system with distributed preset control used in distance learning applications. This system gives each student the power to be instantly identified by the camera with the touch of a locator button on a microphone.

The Student Camera System can store up to 125 Location Presets, 33 of which are connected to the Programmable Response Module. The 33 Student Locations are accessible through the Low Profile

Microphones and the Camera Control Keypad. The other 92 Location Presets are only accessible through the Camera Control Keypad.

In standard distance learning rooms, the camera is set to a wide-angle view of the classroom throughout the lesson. This makes it difficult for instructors at the far-end to differentiate one student from the next and determine exactly which student is speaking. With CameraMan, each individual student can simply press the “My Turn” button on a microphone when they want to speak. The camera will then pan, tilt and zoom in on the individual student, magnifying their image.

When the student is finished speaking, the student simply releases the “My Turn” button and the camera returns to a wide-angle view of the classroom.

This allows instructors at the far-end to identify each student individually and have face-to-face interaction. Building these one-on-one relationships will enhance the overall learning process, making distance learning more responsive and effective.

Your Student Camera System should include these components:

- One 1-CCD or 3-CCD Camera Control Keypad
- One Programmable Response Module
- One Programmable Response Module Power Supply
- One 10' CameraMan Communication Cable
- One CameraMan RS-485 Connector “T”
- One 3' CameraMan Communication Cable
- One Student Camera System Operations Manual
- One Camera Control Keypad Card (1CCD or 3CCD)

FCC Compliance Information

This equipment has been tested and found to comply with the limits for Class A digital devices, 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 this 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 their own expense.

This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to insure compliance.

Grass Valley is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

System Components

Your Student Camera System includes a Programmable Response Module, Power Supply, a 1-CCD or 3-CCD Camera Control Keypad, and connection accessories. To set up your system, you will also need an audio mixer and microphones which may be purchased separately through Grass Valley.

Programmable Response Module



FIGURE 1.1 Front of Programmable Response Module (PRM)

The Programmable Response Module (PRM) is designed to provide automated camera control of a student camera in a classroom environment. Through the use of “press-to-talk” microphones, the camera can be automatically positioned on an individual student when they wish to speak.



Grass Valley’s Low Profile Microphones are recommended for better camera control. “Voice-activated” microphones may pick up background noise and cause unwanted camera motion.

The PRM works on a first-come, first-served basis, so when two or more students activate their microphones at the same time, the first microphone activated will get control of the camera. Once a student has activated the camera, all others are LOCKED out, except the master override microphone. When the student is finished speaking, the PRM will take the next microphone in line. After all the microphones become inactive, the camera will return to a wide-angle shot of the classroom. This can be customized and is stored in Location Preset #2.

Camera Control Keypad

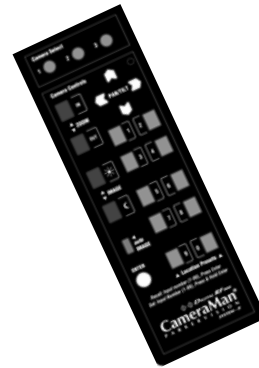


FIGURE 1.2 1-CCD Camera Control Keypad

The included Camera Control Keypad gives you the ability to control the camera's pan and tilt movement, focus, and IMAGE, as well as store and recall up to 125 camera presets.



See the included Camera Control Keypad Operations Manual for information on setup, configuration and use of the keypad.

Power Supply



FIGURE 1.3 Power Supply

The included Power Supply enables use with 120-240VAC, 50/60 Hz sources.

Connection Accessories

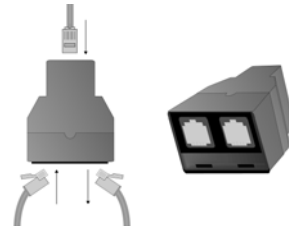


FIGURE 1.4 Top View with Cables and Front View of “T” Connector

- 10' RS-485 CameraMan Communication Cable
- CameraMan RS-485 “T” Connector



If you have purchased this as an upgrade, it will include all components except the Camera.

PRM Jacks and Switches



FIGURE 1.5 PRM Front Panel

Power Switch Used to turn on power.

Power Indicator Light Indicates power on/off status.

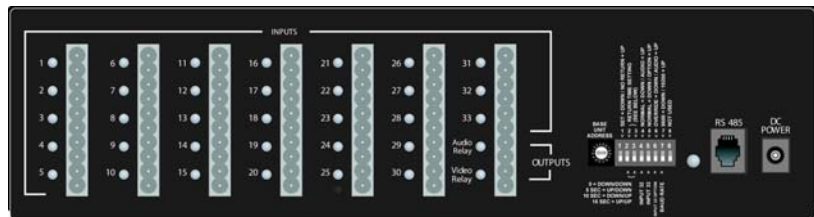


FIGURE 1.6 PRM Rear Panel

- Inputs 1-31** Used for Normal Microphone Contact Closure Inputs
- Input 32** Used for Normal or Audio Only Microphone Contact Closure Input.
- Input 33** Used for Normal, Audio Only, or Master Override Microphone Contact Closure Input.
- Audio Relay** When active, it activates the mute switch of the audio system in the room to prevent feedback when the microphone is active.
- Video Relay** When active, it activates a video switcher to allow automated video switching.
- RS-485 Jack** Used to connect to your CameraMan Camera and other Grass Valley devices. Used to network multiple cameras.
- DC Power Jack** Used to supply power with the included Power Supply.
- Base Unit Address Switch** 16-position rotary switch used to tell the PRM which camera it controls. It should match the Base Unit Address switch on the CameraMan camera. The Factory Default is zero (0).
- DIP Switches** Used to configure the PRM's camera and microphone control.
- RS-485 Indicator Light** Indicates communication activity.

Chapter 2

Install Your Student System

Mounting and Connecting the PRM

Mounting the PRM

Now you can begin to connect your Student Camera System components to your CameraMan camera, and audio equipment.

1. Mount or place the Programmable Response Module in the desired location, being sure to leave sufficient space to allow access to the connections on the back panel.



A rackmount is also available.

2. Verify that the switch on the front of the PRM is turned OFF.
3. Mount or place the PRM power supply in a convenient location near the PRM.
4. Plug the connector from the power supply cord into the DC POWER jack in the back of the PRM.
5. Connect the other end of the power supply into a 100-240 VAC source.

Connecting Microphones to the PRM



The PRM Power Supply and CameraMan Power Supply should not be interchanged.

1. Place the microphones around the room, and label them accordingly (i.e.: numbered 1, 2, 3, etc.)
2. Connect the microphone via the appropriate length microphone extension cable (not included) to the optional microphone “Y” Cable (5-pin mini XLR to 3-pin male XLR/2-pin female Phoenix connector).
3. Connect 3-pin male XLR to your room’s microphone mixer/phantom power source.
4. Connect the 2-pin female Phoenix Connector (green connector block) to the appropriately labeled PRM input (i.e.: 1, 2, 3, etc).
5. Repeat steps 2-4 for all remaining microphones.

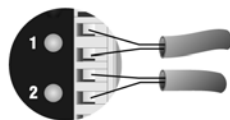


If you are using non-Grass Valley supplied “Y” Cables, follow these instructions to connect the 2-pin female Phoenix Connector wires to the green connector block:

1. Strip a short section (approximately 0.15”) off the end of the wire.
2. Insert the wire into the screw terminal slot on the connector plug.
3. Tighten the terminal screw.
4. Repeat steps 1-3 for the other 4 wire-pairs in that connector block.



If you are using microphones which are polarity sensitive, the inputs should be wired as follows:



1. The positive lead, from the contact closure of the microphone, should be wired to the top input of the pair, labeled “+”.
2. The negative lead, from the contact closure of the microphone, should be wired to the lower input of the pair, labeled “-”.



All of the inputs labeled “-” are wired together internally and connected to ground.

Connecting the PRM to the CameraMan

Using a 4-conductor cable, wired in a “straight-through” mode and terminated with modular handset connectors, connect the RS-485 port on the back of the PRM to the RS-485 port on the back of the CameraMan Camera.

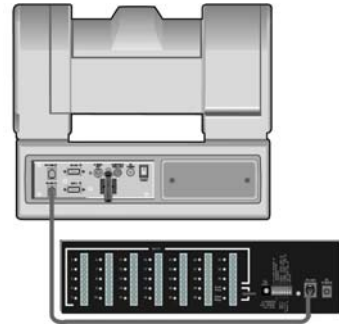


FIGURE 2.1 PRM Connected to CameraMan

Connecting the Contact Closure Outputs

The PRM's AUDIO RELAY and VIDEO RELAY contact closure outputs are activated when a “press-to-talk” microphone button is pressed, and deactivated when the button is pressed again.

AUDIO RELAY

The intended application of this relay is to activate the mute switch of the audio system in the room to prevent feedback when the microphone is active. The relay activates and the contacts close only when a microphone button is pressed. In a typical application, the Audio Relay contact closure would connect to an amplifier or audio switcher.

VIDEO RELAY

The intended application of this relay is to activate a video switcher to select between various video sources. The relay activates and the contacts close only when a microphone button is pressed. When the contact relay is closed, there is a two second delay to allow time for camera movement before the video is switched. In a typical application, the Video

Relay contact closure would connect to a video switcher.

To Connect the Audio, or Video Relay:

1. Connect one end of a 2-conductor cable to the green connector block:
 - Strip a short section (approximately 0.15") off the end of the wire
 - Insert the wire into the AUDIO RELAY or VIDEO RELAY screw terminal slot on the connector block to the far right (the positive "+" lead is on top, the negative "-" lead is on the bottom)
 - Tighten the terminal screw
2. Connect the other end of the cable to your audio equipment per their instructions.

Chapter 3

Configure Your Student System

Configuring the Presets and Switches

Now that you've connected the Programmable Response Module to your CameraMan and microphones, you can begin configuring the system. Use the diagram and controls on the rear panel of the PRM to perform this configuration.

Location Preset Configuration

Your Student Camera System is capable of storing and recalling 125 location presets. The included Camera Control Keypad is used to store a pan and tilt position, focus, zoom perspective, and IMAGE control for each location preset. The microphones and keypad are used to recall them.

Camera Preset #	Preset Type	Recalled By
1-31	normal	press-to-talk button
32	normal/audio only (see p.7)	press-to-talk button
33	normal/option (see p.7)	press-to-talk button
72	default	all other student mics deactivated
34-71 and 73-125	set by user	keypad location preset buttons



FIGURE 3.1 Close-Up of Student Using Press-to-Talk Microphone

Configuring the PRM



The PRM POWER switch should be turned OFF before changing any switches.

BASE UNIT ADDRESS:



This switch tells the PRM which camera it controls. Set this switch to correspond with the BASE UNIT ADDRESS switch on the back of the CameraMan Student Camera (i.e.: If the camera's BASE UNIT ADDRESS is set to 0, set the PRM's BASE UNIT ADDRESS switch to 0). This address **MUST BE** different from the PRM Address.

PRM ADDRESS:



This switch is only accessible by removing the top panel of the PRM. It is used to set the address at which the PRM will reside on the RS-485 bus. This should be set to an address that is unique to all devices (cameras, PRMs, etc) in the system. By default, the address is set to "C". This address **MUST BE** different from the Base Unit Address.

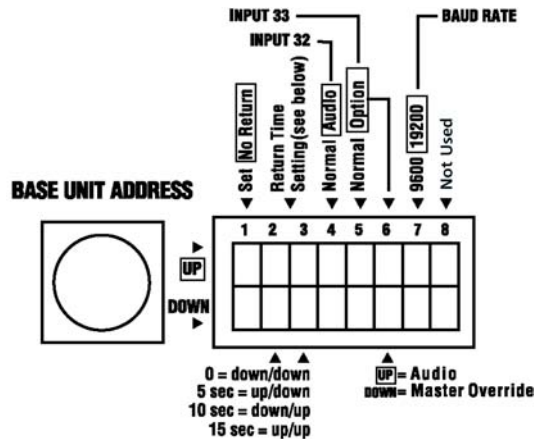


FIGURE 3.2 DIP Switch Configuration

SET/ NO RETURN (DIP Switch 1):

- DOWN (and all microphone inputs are inactive) - The camera will return to a default preset (preset # 72), which is usually set to be a wide shot of the room.
- UP (and all microphone inputs are inactive) - The camera will remain positioned at the last active input.

RETURN TIME/ SETTING (DIP Switches 2,3):

- Switches 2 and 3 only apply if Switch 1 is set to DOWN. They select the time delay associated with the camera returning to the default preset after the last active microphone is released.
- Use this chart to set the switches accordingly:

Switch 1	Switch 2	Switch 3	Time Delay
DOWN	DOWN	DOWN	No Delay
DOWN	UP	DOWN	5 Second
DOWN	DOWN	UP	10 Second
DOWN	UP	UP	15 Second

INPUT #32 OPERATION (DIP Switch 4):

This switch is used to determine the operation mode of input 32.

- NORMAL - The input will operate as a normal input, identical to inputs 1-31.
- AUDIO - The input will operate in an audio-only mode, which causes no camera movement when the microphone is active. In audio-only mode, an active input will not cause the VIDEO RELAY to be activated.



The audio-only mode is intended for use by someone who wishes to be heard, but does not want to cause the camera to position on them, such as a room facilitator.

INPUT #33 (DIP Switches 5,6)

Switch 5 is used to determine the operation mode of input 33.

- NORMAL - The input will operate as a normal input, identical to inputs 1-31.
- OPTION - Then the operation is dependent upon the setting of DIP Switch 6.

Switch 6 settings

- UP - The input will operate in an audio-only mode, which causes no camera movement when the microphone is active. When in audio-only mode, and active input will not cause VIDEO RELAY to be activated.
- DOWN - The input will operate as a Master Override input. When this input is active, the camera will be positioned to a Master Override position (preset 33) and all other microphones will be "LOCKED" out from controlling the camera. Once this input is released, control is returned to all microphones and they are serviced as usual. In this case, the video relay will remain open.

BAUD RATE SETTING (DIP Switch 7):

This switch determines the communication baud rate: UP = 19,200; DOWN = 9,600



19,200 must be used if a SHOT Director or Camera-Man Control Center is connected to the system.

DIP Switch 8:

Not in use at this time.

Setting Up the Camera Control Keypad

Your Camera Control Keypad is designed to be used in either a wireless, or hard-wired mode. The wireless mode allows you to move freely about the room, while the hard-wired option gives you the ability to control the camera from greater distances. For either, follow the next steps to prepare your keypad for use with your Student Camera System.



FIGURE 3.3 Keypad Battery Compartment

- Step 1** Adjust the KEYPAD ADDRESS rotary switch (located in the battery compartment of the keypad) so the selected setting corresponds to the setting of the BASE UNIT ADDRESS switch on the back of the Camera, and the front of the PRM.



See Also: For information on how to set the Base Unit Address on your CameraMan camera, refer to the CameraMan's installation and operations manual.

- Step 2** Connect the Keypad to meet your needs.

For Wireless RF Mode (up to 60 feet):

- Install the supplied AA batteries in the Camera Control Keypad by removing the battery door and inserting the battery into the battery compartment as indicated.
- Replace the battery door.
- Press one of the PAN/TILT arrows on the keypad and verify that the LED on the front of the keypad illuminates. This indicates that the battery is installed properly.



Note: If the light does not illuminate, the battery may be installed backwards. Reverse the way the battery is inserted, and try again. If a low battery is installed, the keypad will emit a long beep.



Note: If the battery is inserted improperly, it *will not* damage the keypad. The keypad will simply not work.

For Hard-wired Mode (up to 250 feet):

- Remove the batteries.
- Connect a CameraMan Keypad Cable (included) to the RJ-11 type jack located in the battery compartment of the Keypad.
- Connect the other end of the cable to the PVI Com port on the CameraMan base unit.



Note: When the system is powered on, the light on the keypad should illuminate momentarily, indicating

the keypad is ready for operation. The light located above the PVI COM port on the base unit is used to indicate communication activity.



Note: You MUST remove the batteries in the Camera Control Keypad when it is being used in the hard-wired mode.

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Chapter 4

Use Your Student System

Changing and Recalling Location Presets

Now that you've connected and configured your Student Camera System, you are ready to begin using the system. To start, plug in the PRM, CameraMan, and any other audio or video components in your system, and power them up.

Using the Camera Control Keypad

The Camera Control Keypad included with your Student Camera System comes in a 1-CCD or 3-CCD version.

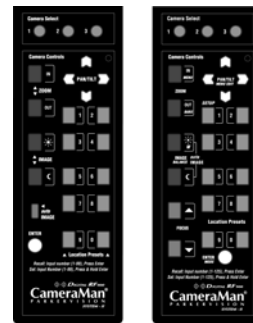


FIGURE 3.1 1-CCD and 3-CCD Keypads



For information on the specific features of your system's Keypad Controller, refer to the included Keypad operations manual.

Both versions of the Keypad include the following control features:

Camera Select Buttons	Used to select which camera the keypad will control.
Zoom IN and OUT	Used to tighten and widen the on-screen image.
Pan/Tilt Arrows	Used to move the camera left and right, up and down.
IMAGE Controls	Used to manually brighten (sun icon) and darken (moon icon) the on-screen image.
Location Preset Buttons	Used to select all Location Presets (1-125)
Enter Button	Used to store and recall Location Presets. When recalling Location Presets, it is selected AFTER pressing the desired Location Preset Buttons.

To Set or Change a Student Location

1. Select the camera you want to program using the CAMERA SELECT buttons. (If only using one camera, be sure CAMERA SELECT 1 is pressed.)
2. Use the PAN/TILT arrows to move the camera to the desired location.
3. Only when desired, use the manual ZOOM buttons to set the needed Zoom perspective.
4. Only when desired, use the manual IMAGE buttons to set the needed light/dark contrast.
5. Input the Location Preset number (1-33) that corresponds with the PRM inputs.
6. Then press and hold the ENTER button until you hear two beeps. The two beeps indicate the Location Preset has been stored.

To Set the Wide-Angle Group View

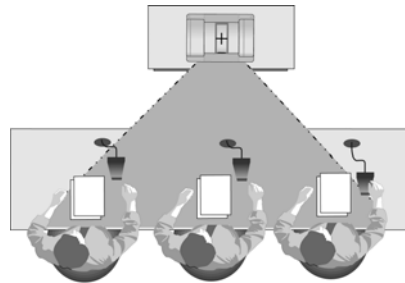


FIGURE 3.2 Wide-Angle Group View

1. Follow previously listed steps 1-4 to achieve a wide-angle view.
2. Input Location Preset Number 72 to be the default preset.
3. Then press and hold the ENTER button until you hear two beeps. The two beeps indicate the GROUP View has been stored.

To Recall a Student Location

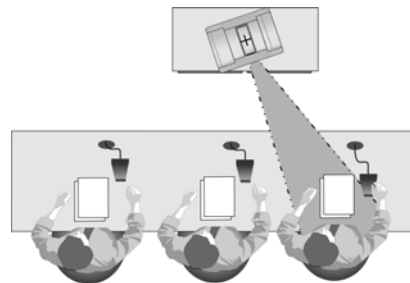


FIGURE 3.3 Student Zoom View

When a student wishes to speak, the student simply presses the “My Turn” button on the microphone and the CameraMan Camera will pan, tilt and zoom in on that student, magnifying his or her image. When the student is done speaking and the “My Turn” button is released, the CameraMan Camera will return to a wide-angle shot of the classroom (preset 72).

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APPENDIX A

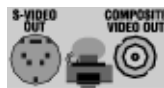
Troubleshooting

Should you have any problems with your CameraMan Student Camera System, please refer to the following guide. After referring to the guide, should you have any questions or problems, please contact your authorized reseller, or contact Grass Valley.

Problem

The Camera's Video is not working properly.

Solution



1. Verify that the VIDEO SELECT switch on the back of the Camera is set properly, either S-VIDEO or COMPOSITE.
2. Verify that the appropriate video connection is being used on the back of the camera, either S-VIDEO or COMPOSITE VIDEO OUT. This is determined by the VIDEO SELECT Switch.



Only one video source can be utilized at any one time. Composite and S-Video formats cannot be used simultaneously.

Problem

The Camera Control Keypad will not control the CameraMan Camera when used in the wireless RF mode.

Solution



1. Verify that the battery is installed in the keypad properly.
2. Verify that the BASE UNIT ADDRESS switch on the back of the CameraMan Camera, and the BASE UNIT ADDRESS switch in the battery compartment of the keypad and on the PRM are set to the same setting.
3. Verify the RF command switch on the back of the CameraMan Camera is set to ENABLE. (B4 needs to be in the DOWN position).
4. Verify that the LED on the front of the Camera Control Keypad illuminates for a few seconds when the battery is first plugged in.
5. Be sure that you have pressed the appropriate CAMERA SELECT button on the keypad corresponding to the camera you wish to control.

If only using one camera be sure to press CAMERA SELECT button 1.

Problem **The Camera Control Keypad will not communicate with the CameraMan Student Camera in the “hard-wired” mode.**

- Solution**
1. Verify that the CameraMan Keypad Cable is connected from the PVI COM port on the back of the camera to the RJ-11 jack in the battery compartment of the Keypad.
 2. Does the light on the front of the keypad come on for a few seconds when the keypad is first plugged in? If not, replace cable with a Grass Valley supplied cable only.
 3. Be sure that you have pressed the appropriate CAMERA SELECT button on the Keypad corresponding to the camera you wish to control.

If only using one camera be sure to press CAMERA SELECT button 1.

Problem **When a student microphone is activated, the CameraMan Camera does not move.**

- Solution**
1. Verify that the PRM POWER switch is ON.
 2. Verify the microphone is wired to the correct input on the PRM and that the corresponding Location Preset is stored. Recall the location with the Camera Control Keypad.
 3. Verify that the BASE UNIT ADDRESS on the back of the camera is set identically to the BASE UNIT ADDRESS on the front of the PRM.
 4. Verify that no microphones are “LOCKED” active.

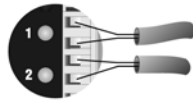


For information on locking and unlocking microphones, see Low Profile Microphone Manual.

5. Verify that the camera is not already at the desired location.
6. Verify that the **Baud Rate** DIP switch #7 on the front of the PRM matches the **Baud Rate** DIP switch #A7 on the Base Unit. (DOWN=9600, UP=19200).

Problem **The camera is locked on one microphone and will not move when other “press-to-talk” buttons are pressed.**

Solution



Verify that the positive (+) and negative (-) leads on the cable connecting that the microphones to the PRM are lined up correctly with the contact closure leads on the PRM.

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APPENDIX B

Specifications

Keypad RF Control Option

RF Range 60 ft. from Camera typical
 Power (2) AA Batteries
 Dimensions 7.0" L x 2.20" W x 0.85" H

Hard-Wired Keypad Option

Range 250 ft. from Camera typical
 Power Supplied through cable

Programmable Response Module

RS-485 Port 4-Pin Modular Jack
 Power Supply 100-240 VAC; 50-60Hz; 15 VDC output; 100 W maximum consumption
 Humidity 0 to 95% non-condensing
 Dimensions 11.75" L x 6.75" W x 3.25" H

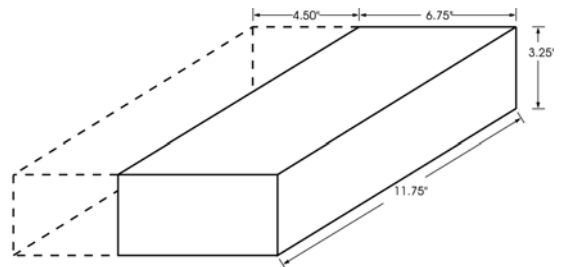


FIGURE B.1 PRM Clearance

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APPENDIX C

Typical Student System Diagram

Below is a typical Student Camera System setup. Your specific application needs, however, will determine how you set up your system.

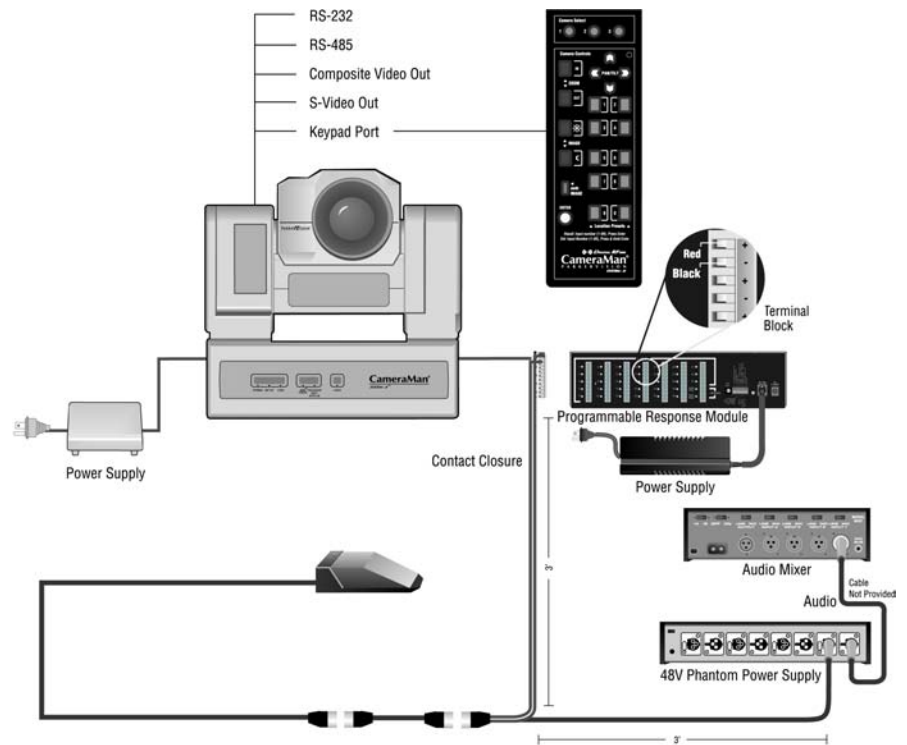


FIGURE C.1 Typical Student System

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APPENDIX D

Warranty Information

Grass Valley One-Year Limited Warranty

- Grass Valley warrants to the end user that this product will be free from defects in material and/or workmanship for a one-year period commencing on the date of delivery, except where expressly noted.
- Proof of Purchase: Grass Valley's authorized Dealer's dated bill of sale must be retained as evidence of the date of purchase and to establish warranty eligibility.
- Grass Valley will correct all defects in material or workmanship, or any failure of the system to perform to specifications during the warranty period, at no charge for parts and labor.
- The original purchaser must notify Grass Valley, in writing, before the warranty period has expired in the event of a defect in material or workmanship, or failure of the system to perform to specifications.
- If damage occurs during shipment from the Grass Valley factory, Grass Valley must be notified within five working days of receipt of the product in order to make a claim.
- Grass Valley is not obligated at any time to provide the purchaser with a substitute unit.
- The warranty is not extended due to purchasing new products and/or upgrading your original product.
- The warranty is non-transferable.
- Purchaser's failure to make a claim as provided above or continued use of the product shall constitute an unqualified acceptance

Product Warranty Registration Form

of such product and a waiver by purchaser of all claims.

- The warranty period begins the day your Grass Valley product is received.
- Product Warranty Registration is required to ensure your product receives prompt attention if warranty work is ever necessary.

Please see your product warranty registration form, which is packaged with every product, for detail on enrolling.

The Warranty is voided if...

- The product is damaged in shipping other than the original shipment from the Grass Valley factory.
- The product is used outside of the specifications or operating guidelines, as outlined in the Grass Valley product manuals.
- The product has sustained physical damage from misuse or abuse.
- The product has sustained damage due to a natural disaster such as fire, lightning, earthquake, etc.
- The product is damaged by non-Grass Valley peripherals.
- A person not authorized by Grass Valley has attempted to/or has serviced the equipment.
- The product's identification (serial numbers, trademarks, etc.) is removed, defaced, or altered.

Return Policies

Contact your authorized Grass Valley Reseller for return procedures.

Extended Service and Support

For details on extended service and support, please contact Grass Valley's Customer Service Department.

Index

A

About Manual, 1–2

B

BASE UNIT ADDRESS, 14

C

Camera Control Keypad, 6
setting up, 17–19
specifications, 29
using, 21–22

Components, 5–7

Configuring Presets, 13

Connection Accessories, 7

Contact Information, vi

M

Manual Overview, 1–2

Microphone
connecting, 10

P

Power Supply, 6
Preset Configuration, 13
Product Description, 2–3
Programmable Response
Module (PRM), 5

clearance, 29
configuring, 14–17
connecting Camera-
Man to, 11
connecting contact
closure outputs
to, 11
connecting micro-
phones to, 10
jacks and
switches, 7–8
mounting, 9
specifications, 29

S

Specifications, 29
Student Location
recalling, 23
setting/changing, 22
Student System
changing and recall-
ing location
presets, 21–23
components, 5–7
description, 2–3

diagram, 31
preset
configuration, 13

T

Troubleshooting, 25

W

Warranty, 33
Website, vi
Wide-Angle Group View, 23