

CameraMan

Student Robotic Camera System

Installation and Operation Manual



LPMSC13 Rev B
1998

the most watched worldwide

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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.

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

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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.

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 99 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 66 Location Presets are only accessible through the Camera Control Keypad or the RS-232 interface.

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 from one student to the next and determine exactly which student is speaking. With CameraMan, each individual student can simply press a locator 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 lets go of the 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)

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. These are not included with your system.

Programmable Response Module

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.



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.

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 99 camera presets (125 for 3-CCD cameras).



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

Power Supply

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

Connection Accessories

- 10' RS-485 CameraMan Communication Cable
- CameraMan RS-485 "T" Connector
- 3 ft. RS-485 CameraMan Communication Cable



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



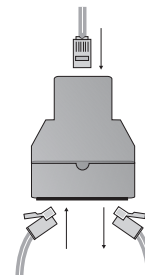
Front of PRM with configuration plate attached



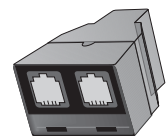
1-CCD or 3-CCD Camera Control Keypad.



Power Supply



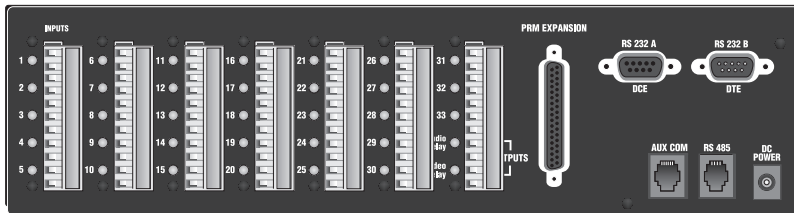
left: top of T-connector with RS-485 cables.



right: front of T-connector

PRM Jacks, Ports And Switches

PRM Jacks and Ports (back)



Inputs

- ? 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.

Outputs

- ? 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.

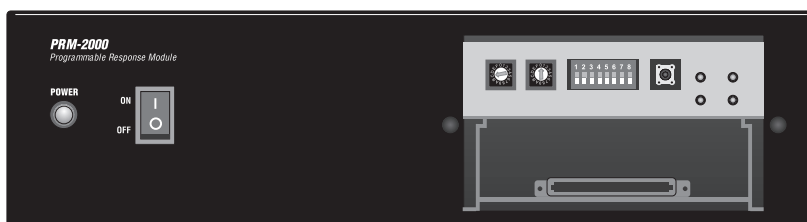
Ports

- ? PRM Expansion Port: Reserved for future use
- ? RS-232 A Port: Reserved for future use
- ? RS-232 B Port: Reserved for future use

Jacks

- ? AUX COM Jack: Provides communications to select peripherals and provides capability for future expansion.
- ? RS-485 Jack: Used to connect to your CameraMan Camera and other ParkerVision devices. Used to network multiple cameras.
- ? DC Power Jack: Used to supply power with the included Power Supply.

PRM Configuration Panel (front with plate removed)



- ▼ **Power Switch:** Used Turn Power On.
- ▼ **PRM Address Switch:** 16-position rotary switch used to set the PRM address which will reside on the RS-485 bus.
- ▼ **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.
- ▼ **DIP Switches:** Used to configure the PRM's camera and microphone control.
- ▼ **Reset Button:** Used to reset the PRM, but will not clear anycamera pre-sets.
- ▼ **Indicator Lights:** Indicates communication activity.

Mounting And Connecting The PRM

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

Mounting the PRM

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.

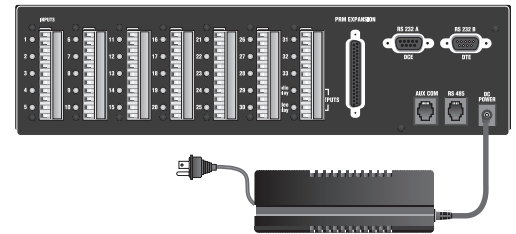


A rackmount is also available.

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.



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



PRM with included Power Supply

Connecting Microphones To The PRM

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-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 wires in that connector block

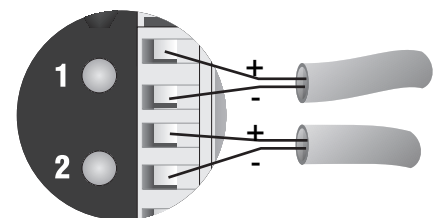
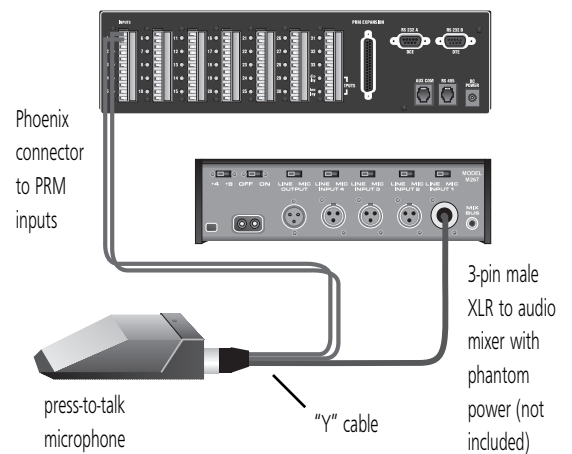


If you are using microphones which are polarity sensitive, the inputs should be wired as follows:

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.



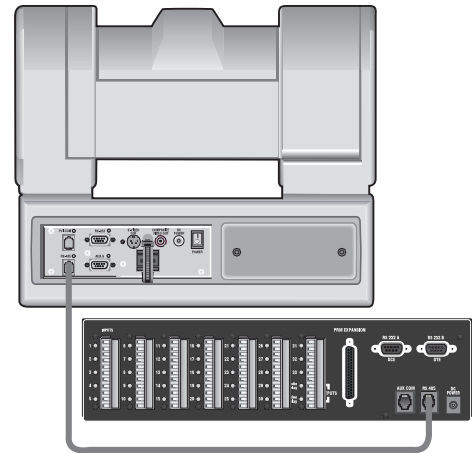
Microphone Inputs on the back of the PRM

cables with negative (-) and positive (+) leads

Mounting And Connecting The PRM

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.



PRM connected to CameraMan via RS-485 cable

Connecting the Contact Closure Outputs

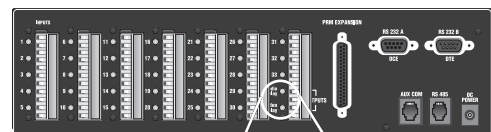
The PRM's AUDIO RELAY and VIDEO RELAY contact closure outputs are activated when a "press-to-talk" microphone button is pressed, and deactivated when the button is released. Your specific application will determine how to connect these to your system.

AUDIO RELAY

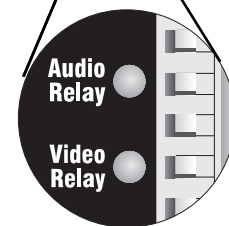
The intended application of this relay is to activate the mute switch of the audio system in the room to prevent feedback when the microphone is active. The relay activates and the contacts close only when a microphone button is pressed. In a typical application, the Audio Relay contact closure would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



PRM Audio and Video Relay Outputs



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.

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. First, remove the configuration plate on the front of the PRM. Behind it, you'll find the switches. On the back of the configuration plate, you'll find a diagram of the switches.

Location Preset Configuration

Your Student Camera System is capable of storing and recalling 99 location preset. 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 73-99	set by user	keypad location preset buttons



Close-up of student using press-to-talk microphone

Configuring the PRM

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

PRM ADDRESS:

This switch 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, this is set to "C".

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)

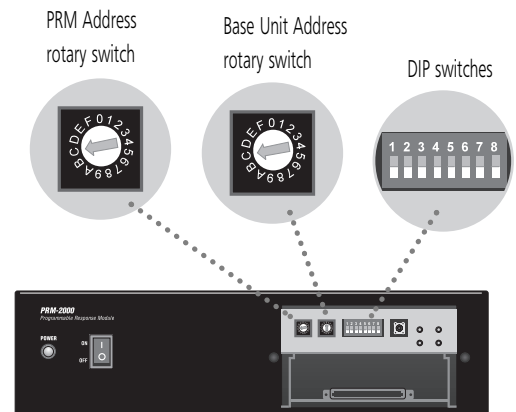
SET/ NO RETURN (DIP Switch 1):

- 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.

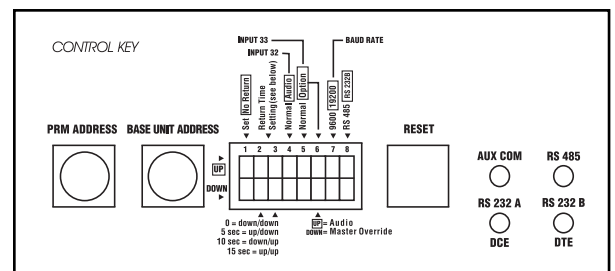
RETURN TIME/ SETTING (DIP Switches 2,3):

- 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



PRM with Configuration Plate removed



Configuration settings printed on inside of configuration plate.

Configuring The Presets and Switches

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 OPERATION (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, an active input will not cause the 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 CameraMan SHOT Director is connected to the system.

PORT SETTING (DIP Switch 8):

This switch determines which communication port is connected to the camera:

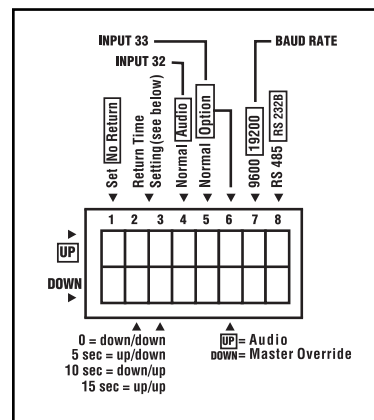
UP = RS-232B (DTE); DOWN = RS-485.



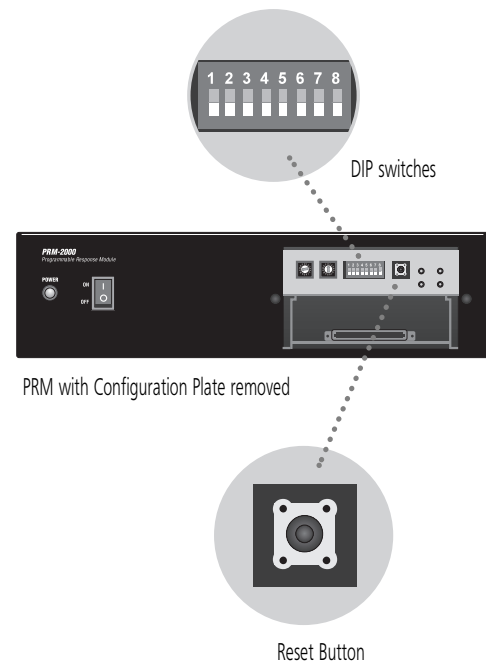
In most applications, you will use RS-485.

RESET BUTTON:

The reset button is supplied for troubleshooting purposes. When this button is pressed, the RS-485 light will flash twice, indicating the PRM has been reset. This will not clear any of the camera presets that are stored in the camera.



DIP switch diagram



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 steps below to prepare your keypad for use with your Student Camera System.

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):

- Connect a CameraMan Keypad Cable (not 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.



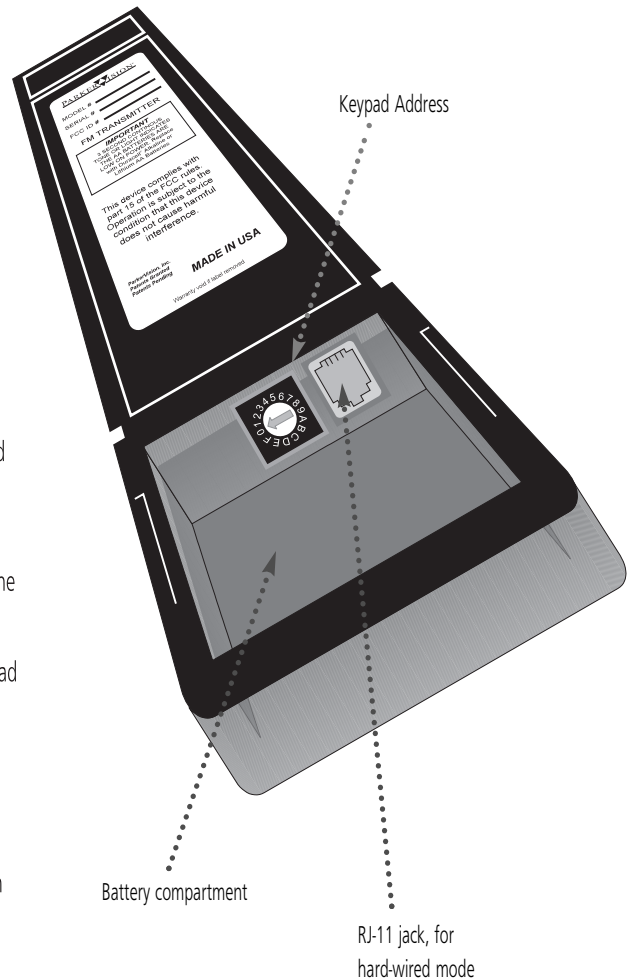
Note: When the system is powered on, the light on the keypad should illuminate momentarily, indicating the keypad is ready for operation. The light located above the PVI COM port on the base unit is used to indicate communication activity.



Note: You do not need a battery installed in the Camera Control Keypad when it is being used in the hard-wired mode.



Note: Using cable other than ParkerVision supplied cable for the PVI COM port may cause damage.



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.



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 recall Location Presets 34-71 and 73-99.
- Enter Button– Used to store and recall Location Presets.

To Set or Change a Student Location

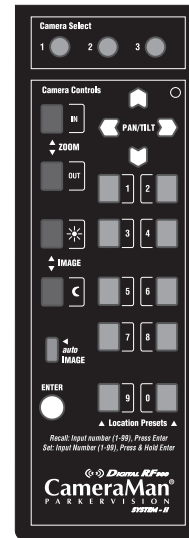
1. Select the camera you want to program using the CAMERA SELECT buttons. (If only using one camera, be sure CAMERA SELECT 1 is pressed.)
2. Use the PAN/TILT arrows to move the camera to the desired location.
3. Only when desired, use the manual ZOOM buttons to set the needed Zoom perspective.
4. Only when desired, use the manual IMAGE buttons to set the needed light/dark contrast.
5. Input the Location Preset number (1–33)
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

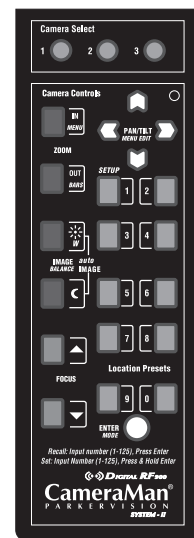
1. Follow steps 1-4 listed above to achieve a wide-angle view.
2. Input Location Preset Number 72 to be the default preset.
3. The press and hold the ENTER button until you hear two beeps. The two beeps indicate the GROUP View has been stored.

To Recall a Student Location

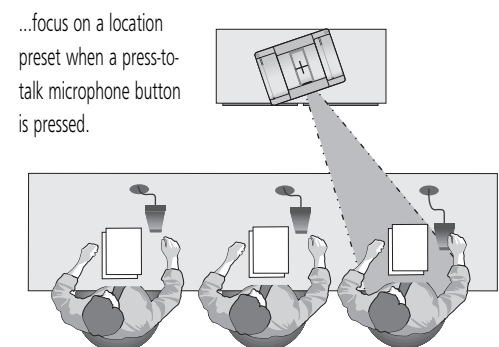
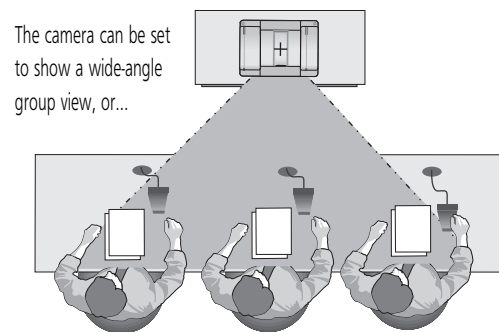
When a student wishes to speak, the student simply presses the locator button on the microphone and the CameraMan Camera will pan, tilt and zoom in on that student, magnifying his or her image. When the student is done speaking, the CameraMan Camera will return to a wide-angle shot of the classroom (preset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



1-CCD Camera
Control Keypad



3-CCD Camera
Control Keypad




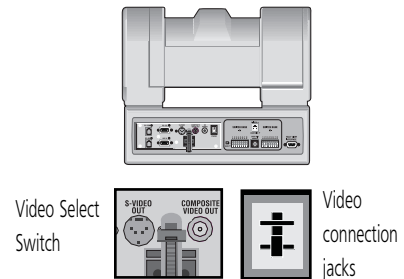
Appendix A: Troubleshooting

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 Grass Valley at (904) 596-3500.

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.
 2. Verify that the appropriate video connection is being used on the back of the camera, either S-VIDEO or COMPOSITE VIDEO OUT.

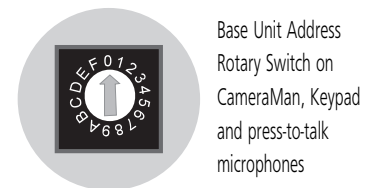
 Only one video source can be utilized at any one time. Composite and S-Video formats cannot be used simultaneously.



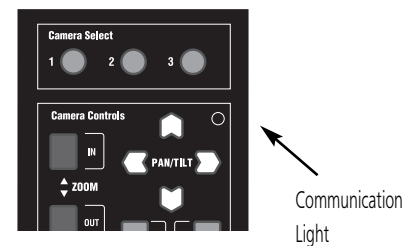
Problem: *The Camera Control Keypad will not control the CameraMan Camera when used in the wireless RF mode.*

- 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 are set to the same setting.
 3. Verify the RF command switch on the back of the CameraMan Camera is set to ENABLE.
 4. Verify that the light 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.



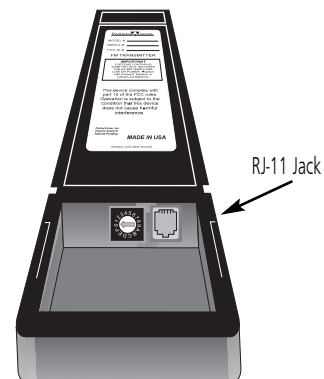
Camera Select Buttons



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.



Appendix A: Troubleshooting

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.

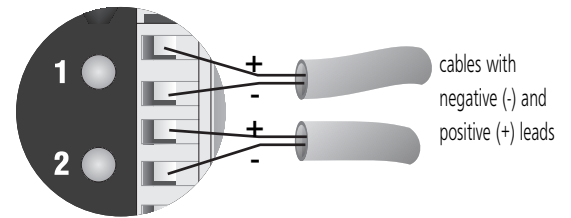
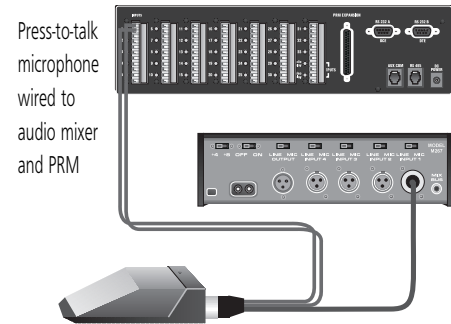


For information on locking and unlocking microphones, see Low Profile Microphone Manual

5. Verify that the camera is not already at the desired location.

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 microphone to the PRM are lined up correctly with the contact closure leads on the PRM.



Microphone Inputs on the back of the PRM

Specifications

KEYPAD RF CONTROL OPTION

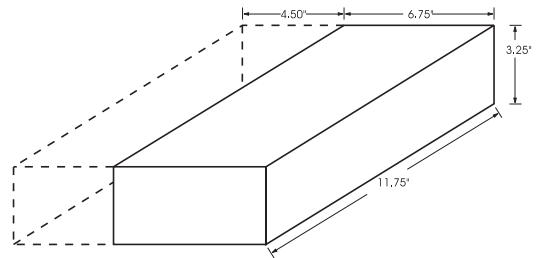
RF Range:60 ft. from Camera typical
 Power:(2) AA Batteries
 Dimensions:7.0" L x 2.20" W x 0.85" H

HARD-WIRED KEYPAD OPTION

Range:250 ft. from Camera typical
 Power:Supplied through cable

PROGRAMMABLE RESPONSE MODULE

RS-232 PortDB-9 (female) connector
 Power Supply:100-240 VAC ; 50-60Hz; 15 VDC output
 100 W maximum consumption
 Humidity0 to 95% non-condensing
 Dimensions:11.75" L x 6.75" W x 3.25" H



PRM Clearance

Appendix B: 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.

