



Sierra Pacific Innovations Corp

6620 S. Tenaya Way #100 – Las Vegas, NV 89113

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SPI M5 Multi-Sensor Vehicle/Stationary Imager



Operation and Installation Manual



INSTALLATION – 3

WARNING – INSTALLATION IS TO BE CARRIED OUT BY QUALIFIED AUTOMOTIVE OR SECURITY INSTALLATION SPECIALISTS FOLLOWING STANDARDS IN PLACE FOR AUTOMOTIVE ELECTRICAL SYSTEMS OR NEC ELECTRICAL CODES. PROPER GROUNDING, WIRE TERMINATION, PRODUCT PLACEMENT, FUSING AND OTHER SAFETY/PERFORMANCE PROTOCOLS ARE THE RESPONSIBILITY OF THE INSTALLER/USER OF THIS EQUIPMENT. FAILURES TO THE SYSTEM OR VEHICLE DUE TO FAULTY INSTALLATION ARE THE RESPONSIBILITY OF THE INSTALLER ALONE.

POWER-	3
SERIAL CONTROL-	3
VIDEO OUTPUT-	3
PHYSICAL INSTALLATION-	4
LCD KEYBOARD CONTROLLER-	4
LCD KEYBOARD CONTROLLER INSTALLATION PHOTO-	5

OPERATION- 6

THE M5 SYSTEM VEHICLE /STATIONARY MODEL CAN BE SETUP AND USED IN A VARIETY OF CONFIGURATIONS. THE FOLLOWING OPERATIONS INSTRUCTIONS OUTLINE THE PERFERED METHOD OF OPERATION AND SHOULD BE FOLLOWED FOR BEST RESULTS. SEVERAL KEY ENHANCEMENTS HAVE BEEN MADE TO THE VEHICLE SYSTEM THAT MAY BE DIFFERENT FROM FIXED MOUNT SCENARIOS. NEVER RELY SOLELY ON THE VIDEO IMAGE TO DRIVE OR MANUEVER THE VEHICLE AS SERIOUS INJURY OR DEATH MAY RESULT. THE M5 SYSTEM IS MEANT FOR SURVEILLANCE AND SITUATIONAL AWARENESS AND IS NOT INTENDED AS AN AIDE TO NAVIGATION.

POWER ON/OFF-	6
START UP SEQUENCE-	6
PAN / TILT POSITIONING-	6
VIEWING CCTV IMAGE-	7
VIEWING THERMAL IMAGE-	8
VIEWING CCTV AND THERMAL IMAGE SIDE BY SIDE-	9
VIEWING CCTV AND THERMAL IMAGE PIP-	10
SWAPPING PIP IMAGE	10
EXITING PIP MODE	10
SETTING THERMAL IMAGE COLOR PALETTE-	11
ACTIVATING THERMAL IMAGE DIGITAL ZOOM-	12
PAN TILT STOPS TURNING-	13



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Installation –

Warning – Installation is to be carried out by qualified automotive or security installation specialists following standards in place for Automotive Electrical Systems. Or NEC. Proper grounding, wire termination, product placement, fusing and other safety/performance protocols are the responsibility of the installer/user of this equipment. Failures to the system or vehicle due to faulty installation are the responsibility of the installer alone.

Power-

The M5 multi-sensor system is a pan tilt remote controlled imaging system that operates on 12VDC main power. THE M5 MUST HAVE ITS OWN DEDICATED POWER LINE TO THE VEHICLE BATTERY AND PROPERLY FUSED FOR SAFETY. DO NOT CONNECT THE M5 POWER TO THE LCD KEYBOARD CONTROLLER. A switch (not included) must be installed in order to turn the M5 system on/off. Installer must insure that an appropriate automotive grade switch is selected that matches the power requirements of the M5 and the aesthetics of the particular vehicle. The use of a relay is recommended.

The wiring harness included with the M5 system uses the following color code:

RED WIRE: 12VDC +

BLACK WIRE: 12VDC – (GROUND)

Supply Power: 12 VDC (+ - 10%)

Supply Current: >= 2.5 amps

Power Consumption: 30 Watts

Serial Control-

The M5 is factory set to respond to Serial RS485 commands using the Pelco-D Protocol. The wiring harness included with the M5 system uses the following color code:

ORANGE WIRE: RS/485 +

YELLOW WIRE: RS/485 –

Connect the Orange and Yellow wire to the LCD Keyboard controller as shown below:

Video Output-

The M5 vehicle model system outputs 2 simultaneous video streams in standard NTSC format for display on a wide variety of monitors (including the LCD Keyboard Controller). The wiring harness included with the M5 system has two BNC video connectors labeled as follows:

CCTV VIDEO: NTSC video signal from the CCD Video camera

THERMAL VIDEO: NTSC video signal from the Thermal video camera

Connect the cable marked “CCTV VIDEO” to input 1 and the cable marked “THERMAL VIDEO” to input 2 on the LCD Keyboard controller as shown below.



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Physical Installation-

The M5 vehicle system is designed to withstand normal operation when properly installed on a motor vehicle. Care should be taken to install the unit in such a way that minimizes vibration and shock to the unit. The unit should be installed into a support member or light bar of sufficient strength and rigidity to hold the unit under a variety of conditions. The M5 should not be installed into standard automotive sheet metal without additional support. Mounting hardware is included for standard installations and alternative bolts of sufficient specification may be used. The M5 requires all 4 bolt holes to be securely installed prior to use. **INSTALLER ASSUMES ALL RESPONSIBILITY FOR INSURING THAT THE M5 IS MOUNTED IN A SAFE AND SECURE MANNER BEFORE VEHICLE OPERATION.** The M5 system rotates in 360 degrees and tilts up and down 180 degrees. Please make sure that the installation point chosen will not inhibit the movement of the M5 system in either the pan or tilt axis's. **REMEMBER TO CHECK TWICE AND DRILL ONCE!**

LCD Keyboard Controller-

The Optional M5 LCD keyboard controller is suitable for stationary or vehicle use. The LCD Keyboard controller must be installed in such a manner that minimizes shock and vibration and exposure to the elements. The LCD keyboard controller **IS NOT** weather proof and must be installed securely within the vehicle. The LCD Keyboard controller operates from standard automotive 12VDC power. The controller may be hard wired into the vehicle by means of the phono plug style 12VDC connector on the controller. **DO NOT** use the green screw terminals on the keyboard controller as these are **NOT** for power into the controller. There is **NO** on/off button on the controller. A switch (not included) must be installed in order to turn the M5 system on/off. Installer must insure that an appropriate automotive grade switch is selected that matches the power requirements of the M5 and the aesthetics of the particular vehicle. The use of a relay is recommended. It is **NOT** recommended to use the same switch for the M5 system and the LCD Keyboard controller. The following illustration shows proper hookup of the LCD Keyboard controller.

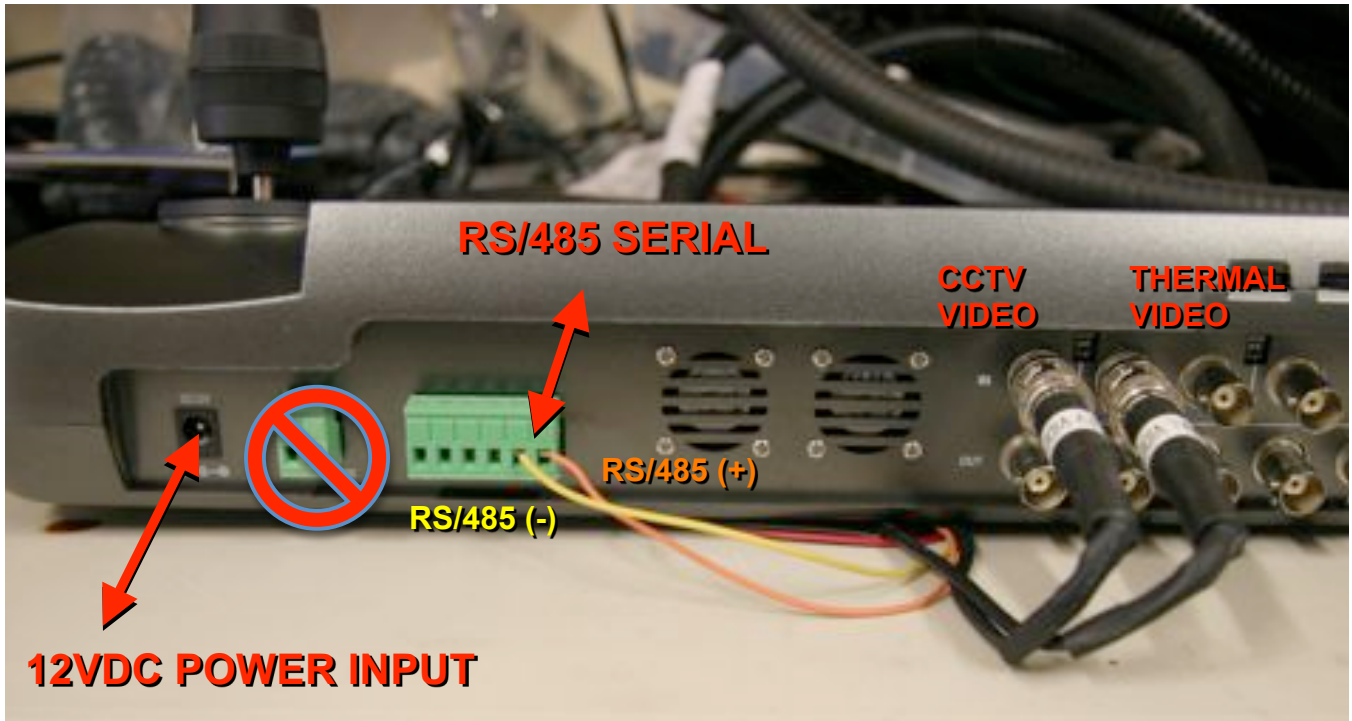


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LCD Keyboard Controller Installation Photo-





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Operation-

The M5 system vehicle model can be setup and used in a variety of configurations. The following operations instructions outline the preferred method of operation and should be followed for best results. Several key enhancements have been made to the vehicle system that may be different from fixed mount scenarios. NEVER RELY SOLELY ON THE VIDEO IMAGE TO DRIVE OR MANUEVER THE VEHICLE AS SERIOUS INJURY OR DEATH MAY RESULT. THE M5 SYSTEM IS MEANT FOR SURVEILLANCE AND SITUATIONAL AWARENESS AND IS NOT INTENDED AS AN AIDE TO NAVIGATION.

Power ON/OFF-

The M5 system and LCD Keyboard controller DO NOT have integrated on/off switches. The installer should direct you to the custom switches installed in the vehicle. The Keyboard and M5 should be powered on at the same time.

Start Up Sequence-

Once power is switched on to both the LCD Keyboard controller and the M5 system the unit will begin its start up sequence. The CCTV video stream will display “...Checking” during the start up sequence. DO NOT TOUCH THE M5 SYSTEM OR THE CONTROL KEYBOARD DURING STARTUP. When the start up sequence is complete the display will show “....Success”. After this point you may begin to use the system.

Pan / Tilt Positioning-

The joystick on the LCD Keyboard controller causes the camera to rotate and tilt up and down in the following manner:

JOYSTICK RIGHT: Camera pans to the right

JOYSTICK LEFT: Camera pans to the left

JOYSTICK UP: Camera tilts up

JOYSTICK DOWN: Camera tilts down

JOYSTICK TWIST RIGHT: CCTV Camera zooms in (TELEPHOTO)

JOYSTICK TWIST LEFT: CCTV Camera zooms out (WIDE ANGLE)

The joystick commands can be combined to make the camera move in a diagonal direction. The joystick is also of a proportional nature meaning that the further you push it in any direction the faster the camera will spin. The M5 Keyboard controller is equipped with “Intelligent Joystick” technology that alters the speed of the unit in relationship to the zoom level chosen on the CCTV camera. When the CCTV camera is zoomed in the speed is slower to compensate for the reduced field of view.



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Viewing CCTV Image-

To view the CCTV image stream in full screen mode use the following button combination:
Press and HOLD the <FUNC> button and press the <1> numeric button.





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Viewing Thermal Image-

To view the Thermal image stream in full screen mode use the following button combination:
Press and HOLD the <FUNC> button and press the <2> numeric button.





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Viewing CCTV and Thermal Image Side by Side-

To view the thermal image and CCTV image side by side in Quad Mode Press and HOLD the <FUNC> button and press the <V > down arrow.





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Viewing CCTV and Thermal Image PIP-

To view the thermal image and CCTV image in PIP (Picture in Picture) Mode
Press and HOLD the < FUNC > button then press the < up > arrow



Swapping PIP Image

To swap between Thermal Video and CCTV Video while in PIP mode
Press and HOLD <FUNC > and press < 1 > for CCTV large image or press < 2 > for Thermal large image.

Exiting PIP Mode

To exit PIP mode
Press and HOLD <FUNC> and press the <V> down arrow to get back to side by side QUAD mode.
To exit to full screen (while in Quad Mode only) Press and HOLD <FUNC> and press <1> or <2>.



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Setting Thermal Image Color Palette-

To change the thermal image color palette you must be in CCTV Video mode to enter the onscreen menu (see "Viewing CCTV Image").

Press <6> press <4> press <CALL> and the onscreen menu should appear



ATTENTION

New Feature!

To access thermal palettes (change the color of thermal images) and activate thermal ZOOM use the <OPEN> and <CLOSE> buttons on the keyboard. Push the buttons repeatedly to cycle through the options.

Use the Joystick <up> <down> to select

4. THERM IMAGE SET

When selected the words < THERM IMAGE SET> will blink and you push the joystick to the right to select the sub menu



From the submenu THERM IMAGE SET select

1. VIDEO LUT

When selected the words <VIDEO LUT> will blink and you push the joystick left and right to select the Thermal Image color palette

To EXIT ONSCREEN MENUS select the last menu item <RETURN> with the joystick and when it is blinking push the joystick to the right to activate <RETURN> and exit

Press and HOLD <FUNC> then press <2> to return to Thermal Video



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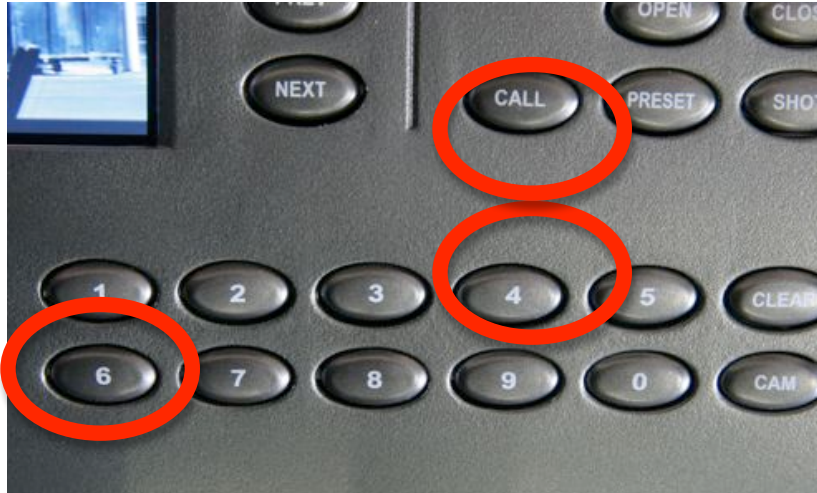
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Activating Thermal Image Digital Zoom-

To activate the thermal image digital zoom function you must be in CCTV Video mode to enter the onscreen menu (see "Viewing CCTV Image").

Press <6> press <4> press <CALL> and the onscreen menu should appear



ATTENTION

New Feature!

To access thermal palettes (change the color of thermal images) and activate thermal ZOOM use the <OPEN> and <CLOSE> buttons on the keyboard. Push the buttons repeatedly to cycle through the options.

Use the Joystick <up> <down> to select

4. THERM IMAGE SET

When selected the words < THERM IMAGE SET> will blink and you push the joystick to the right to select the sub menu



From the submenu THERM IMAGE SET select

1. VIDEO ZOOM

When selected the words <VIDEO ZOOM> will blink and you push the joystick left and right to select the Thermal Image Video Zoom <ON>

To EXIT ONSCREEN MENUS select the last menu item <RETURN> with the joystick and when it is blinking push the joystick to the right to activate <RETURN> and exit

Press and HOLD <FUNC> then press <2> to return to Thermal Video



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PAN TILT STOPS TURNING-

Always make sure that DOME ID is set to 0001.



If DOME ID is not set to 001 the pan tilt will not respond. To correct this go into CCTV Video mode <FUNC> and <1> and then Press <1> (DATA should read <DATA:0001> Then press <CAM> You should see that now DOME ID reads <DOME ID:001> and pan tilt should resume normal operation.

IF PAN TILT STILL DOES NOT RESPOND

Make sure that the Protocol and Baud Rate are set correctly in the system setup menus. You can access the system setup menus by pressing the <MENU> button on the controller. Access the <SYSTEM SETUP> menu with the joystick. Move the joystick up and down to highlight <SYSTEM SETUP> and then move the joystick to the right to select the sub menu. You can adjust the settings in the sub menu with the joystick.

PROTOCOL=0003

BAUD RATE=2400

After setting the PROTOCOL and BAUD RATE exit the menus with the joystick.