

User
Manual

**Mobile View
Mobile Digital Video Recorder**



GE Interlogix



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BEFORE YOU BEGIN

Read these instructions before installing or operating this product.

Note: This installation should be made by a qualified service person and should conform to local codes.

This manual provides installation and operation information. To use this document, you must have the following minimum qualifications:

- A basic knowledge of CCTV systems and components
- A basic knowledge of electrical wiring and low-voltage electrical hookups

Intended use

Use this product only for the purpose for which it was designed; refer to the product specification and user documentation.

Customer Support

For assistance in installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, please contact GE Interlogix, Kalatel division Technical Support and Sales:

Kalatel, a division of GE Interlogix, Inc.

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Fax: 541-752-9096

Note: you should be at the equipment and ready with details before calling Technical Support.

Conventions Used in this Manual

Boldface or button icons highlight command entries. The following **WARNING**, **CAUTION**, and **Note** statements identify potential hazards that can occur if the equipment is handled improperly:



*** WARNING:**

Improper use of this equipment can cause severe bodily injury or equipment damage.



**** CAUTION:**

Improper use of this equipment can cause equipment damage.

Note: Notes contain important information about a product or procedure.

* This symbol indicates electrical warnings and cautions.

** This symbol indicates general warnings and cautions.

1 THEORY OF OPERATIONS

MobileView[®] is an industry-specific security camera system developed to help solve problems experienced by fleet operators. It is a digital video recording system that can support up to eight cameras in a mobile environment and store captured images in a vehicle-mounted digital video recorder (DVR). Images can then be viewed later, or transmitted to a central station through a cellular communications network (for installation of the cellular transmission system, see the *MobileView DVRT Installation Manual*).

1.1 DIGITAL VIDEO RECORDING

The central component of the MobileView system is a high-quality DVR, which records images from up to eight cameras (monochrome or color, NTSC or PAL) with single-channel audio and information such as the time, date, and vehicle number. Image storage capacity can be adjusted by recording speed, selected resolution, and drive size.

The DVR begins capturing images as soon as the vehicle's engine is started and continues to record as long as the vehicle is running, or for a designated period of time after the vehicle is turned off. When the available storage capacity is full, the DVR will automatically purge the oldest image data to make room for new image data. Tagged images (images recorded because of alarm activation) can be protected from being overwritten for a user-designated period of time (the default setting is 30 days) or can be protected from being over written at all.

By utilizing an optional modem, MobileView can also transmit images from the DVR to a central monitoring station through a cellular telephone network. The cellular transmission is bidirectional, meaning that image transmission can be activated from the vehicle or central station.

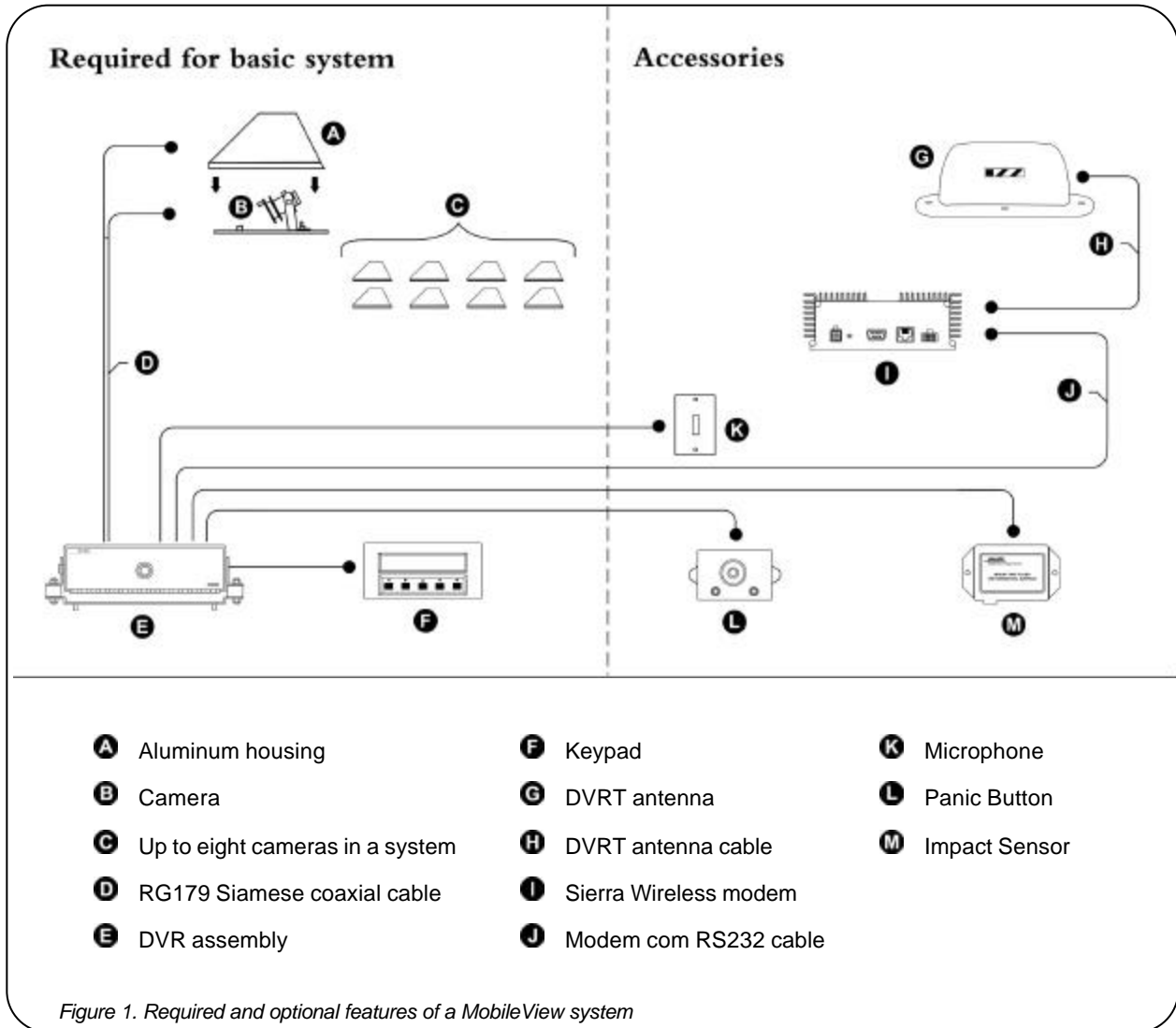
1.2 VIEWING AND RETRIEVING IMAGES

The captured digital images are stored as monochrome or color files, and are taken from the DVR and downloaded to a computer with the MobileView WaveReader or Browser software. The DVR connects through a docking station or Ethernet connection to a standard desktop PC installed with a Windows 95/98/2000/NT/XP operating system. When the DVR has been inserted into the docking station, images can be viewed on a monitor and transferred to long-term storage media such as DAT tapes, floppy disks, or recordable CD's.

If the transmission option is being used, images can be viewed as they are being captured on the vehicle either by the activation of an alarm on the bus or by the central station calling up the DVR on a bus and requesting images. Images viewed this way can be captured and stored by an operator at the central station, while they are still being recorded onto the DVR at the vehicle site. The central station operator or authorized remote user can also call a vehicle's DVR and access not only current images, but also previously recorded images on the DVR and/or DVR specific system log information (see the *MobileView WaveReader Manual* for complete information).

1.3 REQUIRED AND OPTIONAL FEATURES OF A MOBILEVIEW SYSTEM

A MobileView system consists of the required equipment and the accessories shown in Figure 1.



2 HARDWARE INSTALLATION

The MobileView digital video recording system supports up to eight cameras, a DVR, a keypad interface, single-channel audio, and an optional impact sensor, panic button, and microphone. Systems using the transmission option (DVRT) also include a cellular modem and antenna.

Note: Most MobileView products are not supplied with mounting hardware. Exceptions are noted in the appropriate sections of the manual.

2.1 TOOLS NECESSARY FOR INSTALLATION

The following tools and supplies are necessary for installation:

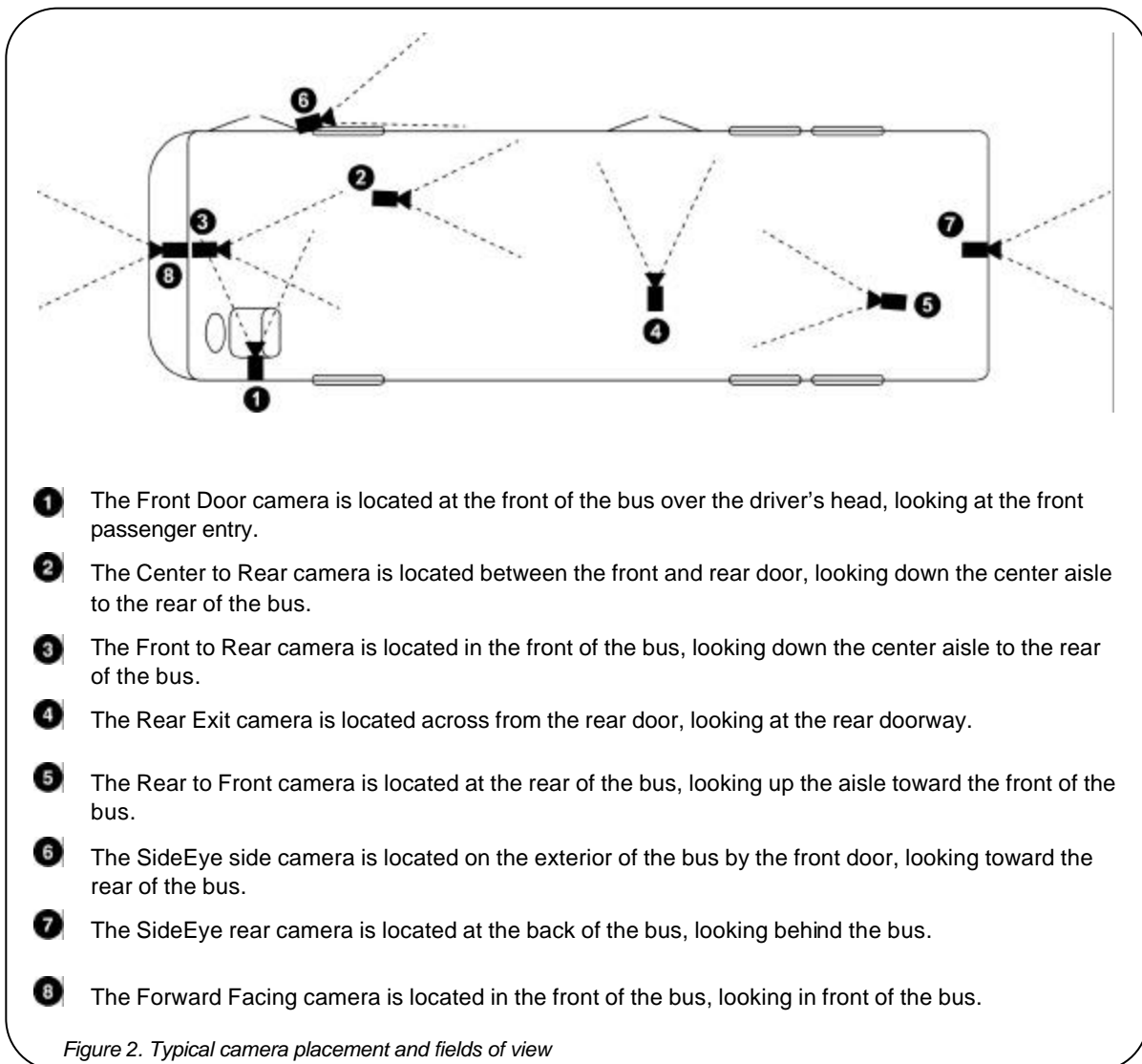
- MobileView Test Kit
- Laptop / viewing station
- Electrical volt meter
- BNC crimper
- Molex pin crimper
- Riv-nut gun
- Socket set up to 5/8-in.
- Wrenches up to 5/8-in.
- Phillips and flathead screwdrivers
- Solder gun with solder
- Wire strippers
- Drill
- Drill bits up to 5/8-in.
- Hole saws up to 1 1/8-in.
- Locktite (blue)
- Torx bit secured #10
- Wire snake
- Extension cords
- 8-in. tie wraps
- Electrical tape
- Heat shrink
- Spare BNCs
- Spare Molex pins
- Electrical connections—ends, eyes, lugs, etc.
- Relays, 12 and 24 VDC
- In-line fuses and 5-amp fuses
- Spare J9, J11, and J12 terminal blocks
- General tools

2.2 DETERMINING A SYSTEM LAYOUT

Determine an appropriate system layout. Figure 2 shows one example of how a camera layout for a bus application might look.

Note: Cameras 6 and 7 in Figure 2 are MobileView SideEye cameras; Camera 8 is a MobileView Forward Facing camera. For installation of these cameras, see their respective manuals.

Note: Camera layout and fields of view will vary from vehicle to vehicle, and each customer will determine camera names or descriptions. Camera types, fields of view, and cable lengths will be determined by the customer-specific system layout.



2.3 RUNNING CAMERA CABLES



CAUTION:

When installing cables it is important to note the following guidelines:

- Avoid excessive lengths of cable at the control and device end. Excess cable should be pulled back to a duct area where it can be folded and secured. Leave a service loop as directed for specific devices.
- Cables should not come into contact with bare metal edges, light ballasts, or magnetic speaker coils. If ballasts and speaker coils cannot be avoided, cross them perpendicularly.
- Cables that are secured with cable-ties should not be tightened to the extent that the cable is compressed or damaged. The cables should not be crimped, crushed, or severely bent.
- When passing cables through tapping plates or metal side walls of the vehicle, insert grommets in the holes to protect the cable, if possible. This may not be feasible in a retrofit situation. If it is not feasible, make sure that the protective outer CL2 jacket is maintained when passing cable through hole.
- When pulling cable through conduit, do not jerk or over-pull the cable. These actions will stretch and damage the cable. Attach a pull-line to the cable jacket, not to the connectors.

- 1) Route cables from each camera location to the DVR location as determined by your customer-specific system layout. Figure 3 shows an example system layout.
- 2) If cables must be pulled through vehicle walls with limited access or conduit, attach pull lines to the cables jackets, and gently pull cables through the appropriate routing paths.
- 3) After reaching camera locations, leave enough cable for a 6-inch service loop at each location.
- 4) Pull any excess cable back into the duct area where it can be folded and secured.

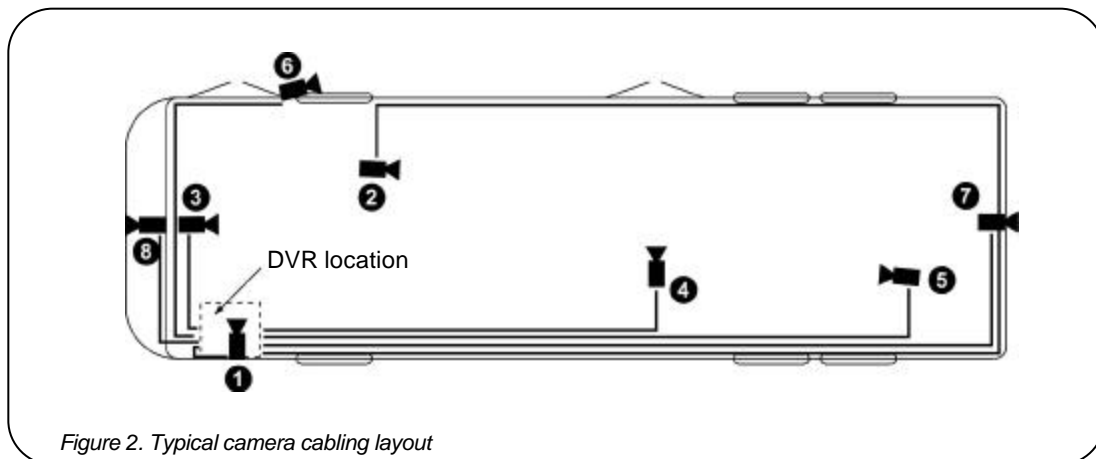


Figure 2. Typical camera cabling layout

2.4 INSTALLING CAMERA ASSEMBLIES

The MobileView system will support up to eight cameras (color and/or monochrome). Cameras supported by the MobileView system can provide a 1.0-V pk-pk composite analog video signal, either NTSC or PAL, at 75-ohm (CCTV standard).

2.4.1 INSTALLING SURFACE-MOUNT CAMERA ASSEMBLIES

Surface-mount camera housings are typically mounted to the ceiling, but can be mounted to any flat vehicle surface.

Note: In some installations, it is necessary to use a metal tapping plate behind the mounting surface. If a tapping plate is used, prepare it in the same way as the mounting surface (i.e., drill a cable entry hole and mounting holes in the appropriate locations).

- 1) Use the template provided in Appendix A to mark the location of the unit's cable-entry hole and two mounting holes. See Figure 4.
- 2) Using a 3/16-inch drill bit, drill the two mounting holes.
- 3) Using a 1-inch drill bit, drill the cable entry hole.
- 4) Install a 3/4-inch (interior diameter) grommet on the cable entry hole, or where feasible (large enough to allow the BNC connector to pass through/on mounting plate only).
- 5) Connect the video and power cables to the camera, and feed the excess cable into the vehicle's duct area.
- 6) Mount the camera and mounting plate to the vehicle surface (and tapping plate, if used). See Figure 5.
- 7) Refer to section 2.4.3 to align the camera's field of view to the appropriate angle.
- 8) Secure the surface-mount housing to the mounting plate with the four 3/8-inch tamper-resistant tamper-torque machine screws provided, using a blue locktite. See Figure 6.

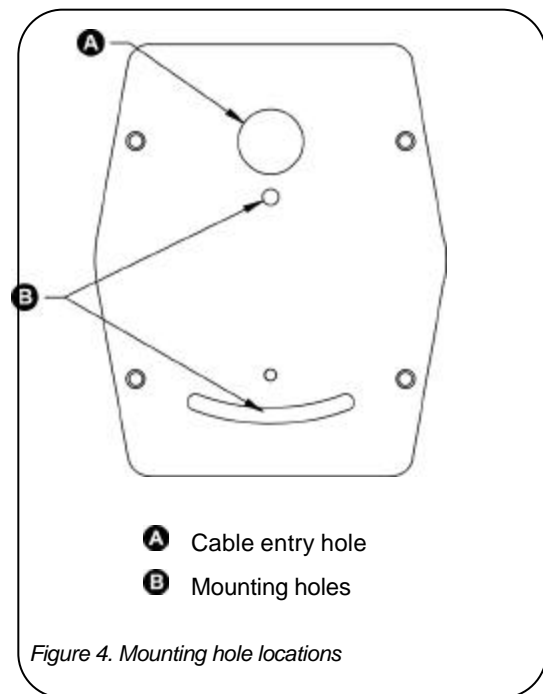


Figure 4. Mounting hole locations

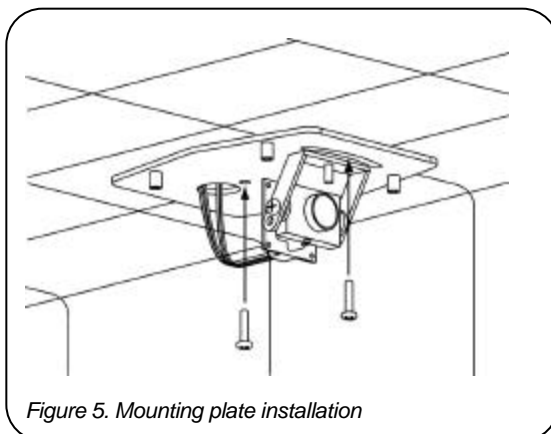


Figure 5. Mounting plate installation

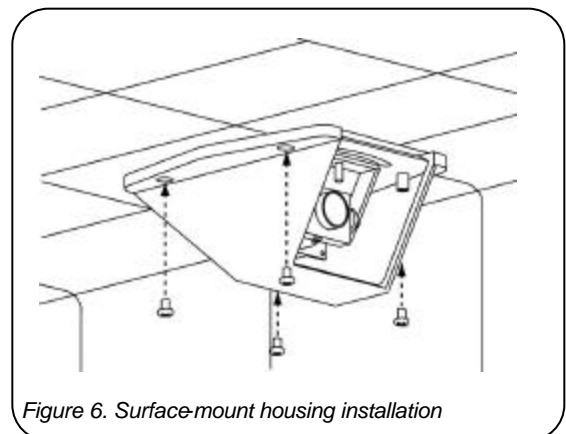


Figure 6. Surface-mount housing installation

2.4.2 INSTALLING FLUSH-MOUNT CAMERA ASSEMBLIES

There are two types of flush-mount cameras—square and angled. Flush-mount camera assemblies are mounted flush with the side panels of the vehicle.

Note: The square bezel that holds the glass camera cover has countersunk holes in the back side that cover the two housing screws. The housing and bezel screws are separate to allow access to the camera for focusing and adjusting while the housing is held firmly in place.

- 1) Verify that there is at least 6 inches of clearance behind the mounting location.
- 2) Cut a 3.4- by 3.4-inch hole in the appropriate location on the mounting surface.
- 3) Using the housing as a template, mark the location of the mounting holes.
- 4) Using a 3/16-inch drill bit, drill the mounting holes.
- 5) Connect the video and power cables to the camera assembly.
- 6) Mount the camera assembly to the vehicle surface using two fasteners screwed into panel nuts. See Figure 7 or 8 (depending on the type of camera assembly being installed).

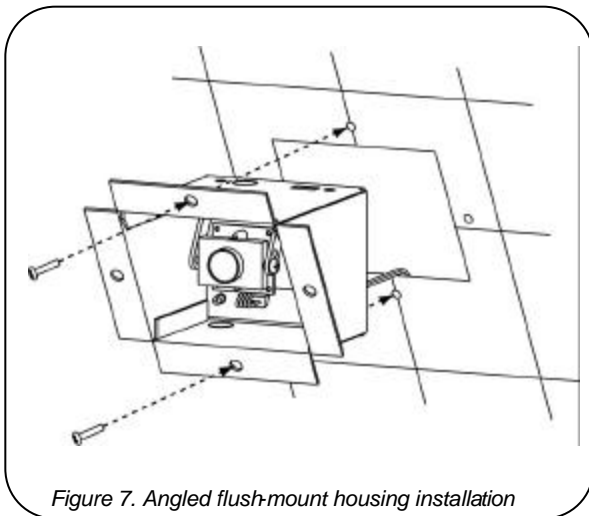


Figure 7. Angled flush-mount housing installation

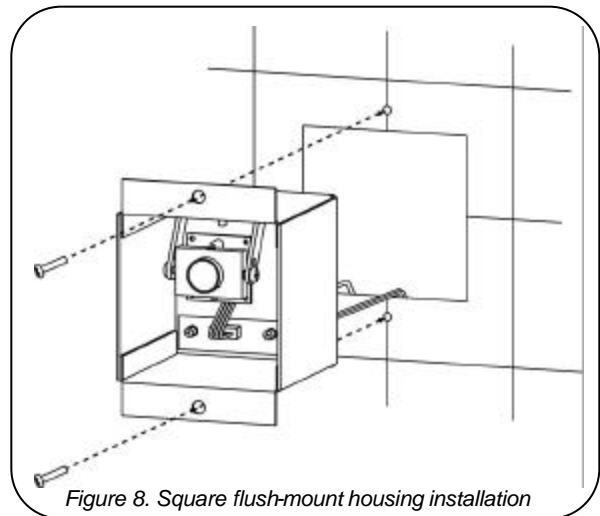


Figure 8. Square flush-mount housing installation

- 7) Refer to section 2.3.3 to align the camera's field of view according to the appropriate angle.
- 8) Attach the cover plate to the housing. If you are installing a square housing, you must drill two additional mounting holes for the cover plate. See Figure 9 or 10.

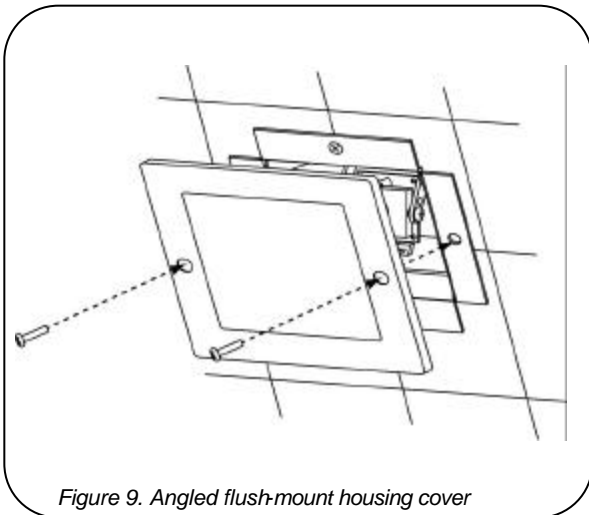


Figure 9. Angled flush-mount housing cover

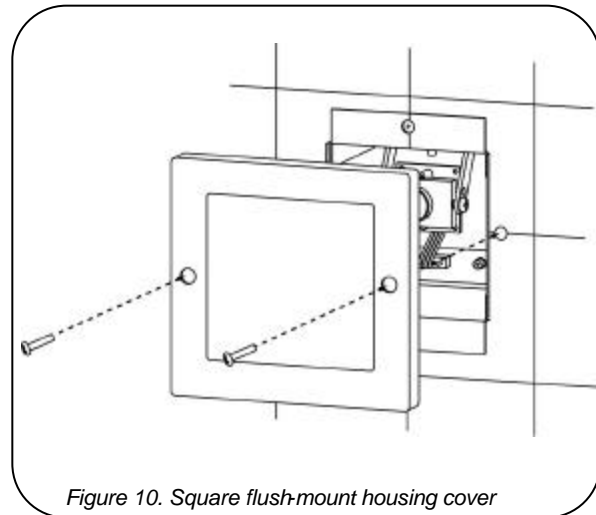


Figure 10. Square flush-mount housing cover

2.4.3 ADJUSTING CAMERAS FOR FUNCTIONAL FIELD OF VIEW

Depending on location, the positioning of the camera might have to be adjusted to provide the best field of view. Adjusting the camera positioning might include altering the position of the camera and, for surface-mount cameras, using a spacer.

To adjust the angle of the camera, see Figure 11 and perform the following:

- 1) Loosen the camera's pivot screws.
- 2) Rotate the camera to the correct angle.
- 3) Retighten the pivot screws.

Surface-mount cameras are configured at the factory to be installed onto the ceiling of the vehicle. If you are installing a surface-mount camera on the side of the vehicle, see Figure 12a and follow steps 4 through 6 to rotate the camera lens.

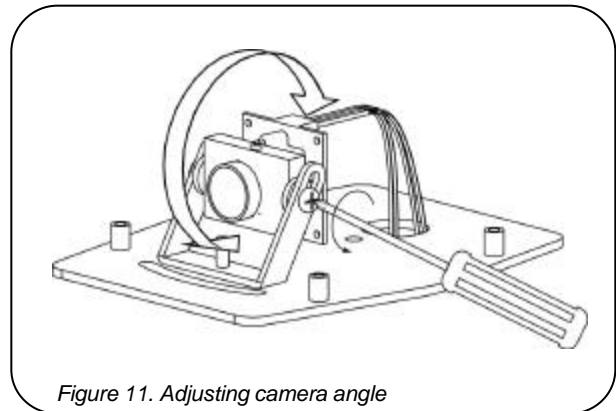


Figure 11. Adjusting camera angle



CAUTION:

Over-tightening the set and pivot screws can damage the camera's lens.

- 4) Loosen the set screw on the top of the camera assembly.
- 5) Rotate the camera assembly 90°.
- 6) Retighten the set screw.

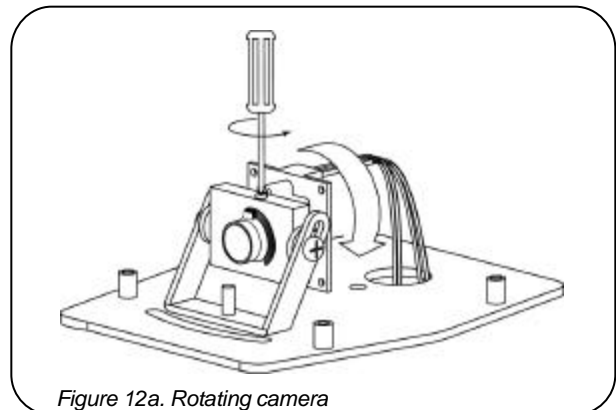
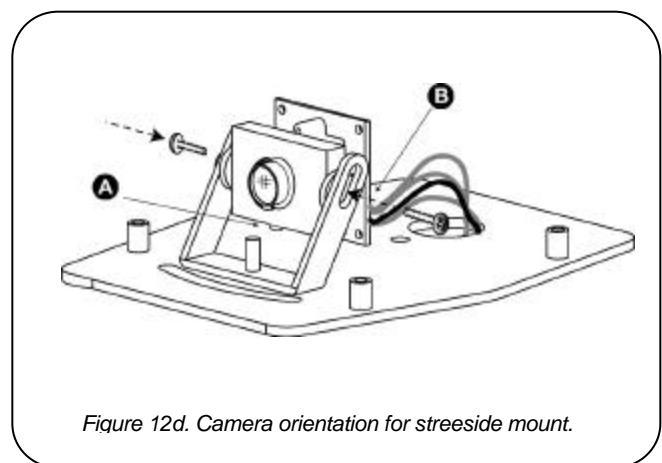
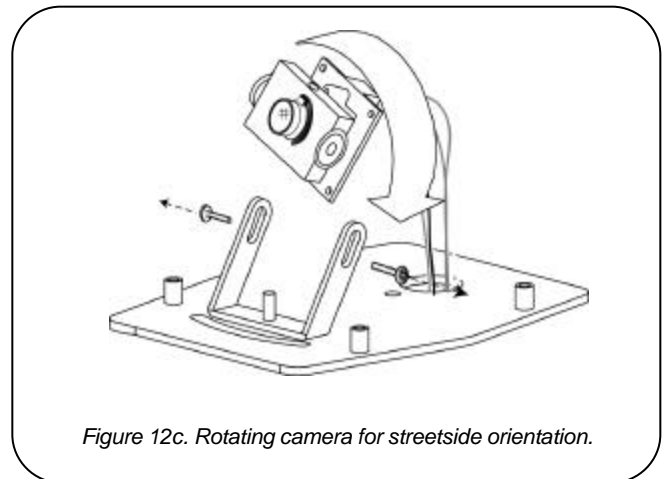
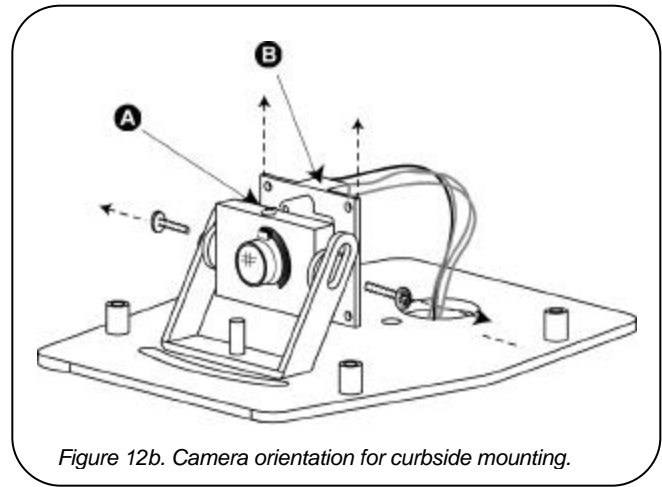


Figure 12a. Rotating camera

Steps 7 through 10 explain how to adjust the camera according to where will be mounted on the vehicle.

- 7) Figure 12b shows orientation of camera for mounting on the curbside of the bus, the backside of the bus, or in a forward-facing position on the dashboard. Note that the lens set screw (A) and the wiring harness (B) are positioned at the top of the camera.
- 8) For cameras mounted on the streetside of the bus or surface-mounted facing backwards, remove the two side-set screws, as shown in Figure 12, and lift the camera out of its bracket.
- 9) Rotate the entire camera assembly 180 degrees, as shown in Figure 12c.
- 10) Insert camera back into bracket, and replace set screws. Lens set screw and wiring harness should now be positioned at the bottom of the camera, as shown in Figure 12d.



2.5 INSTALLING THE STATUS KEYPAD

The status keypad should be installed in an enclosed, secure area inaccessible to the public.

The keypad is preset at the factory for 5-VDC power input. If the keypad is to be installed more than 100 feet from the DVR, it must be switched to 12-VDC power input; refer to Appendix B for keypad setup. If you are installing more than one keypad, refer to Appendix B to set the DIP switch.

- 1) Using the mounting bracket as a template mark the location of the mounting holes, (see Figure 13).
- 2) Drill the mounting holes.
- 3) Mount the keypad.
- 4) Run a four-conductor 18 AWG twisted-pair cable with overall shield from the keypad location to the DVR location.
- 5) Trim the cable to the desired length.
- 6) At the keypad end, use a Molex crimper to crimp the wire's pins.
- 7) Insert the wires into the receptacle end of the four-pin Molex connector according to Figure 14.
- 8) Plug the Molex connector into the keypad.

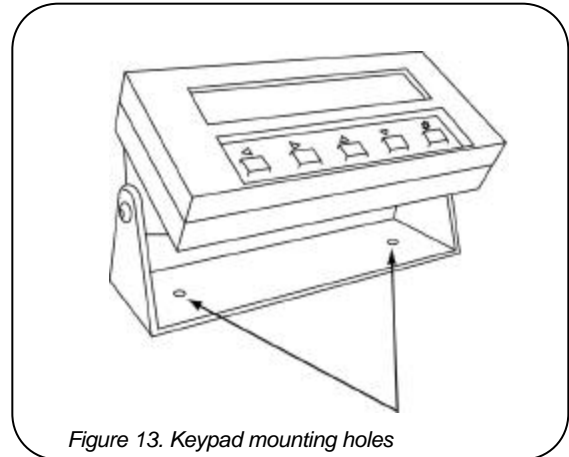


Figure 13. Keypad mounting holes

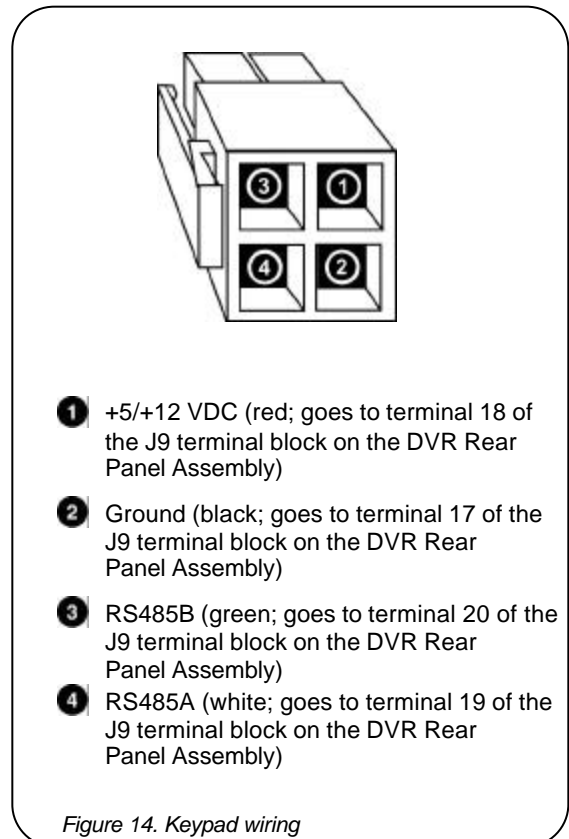


Figure 14. Keypad wiring

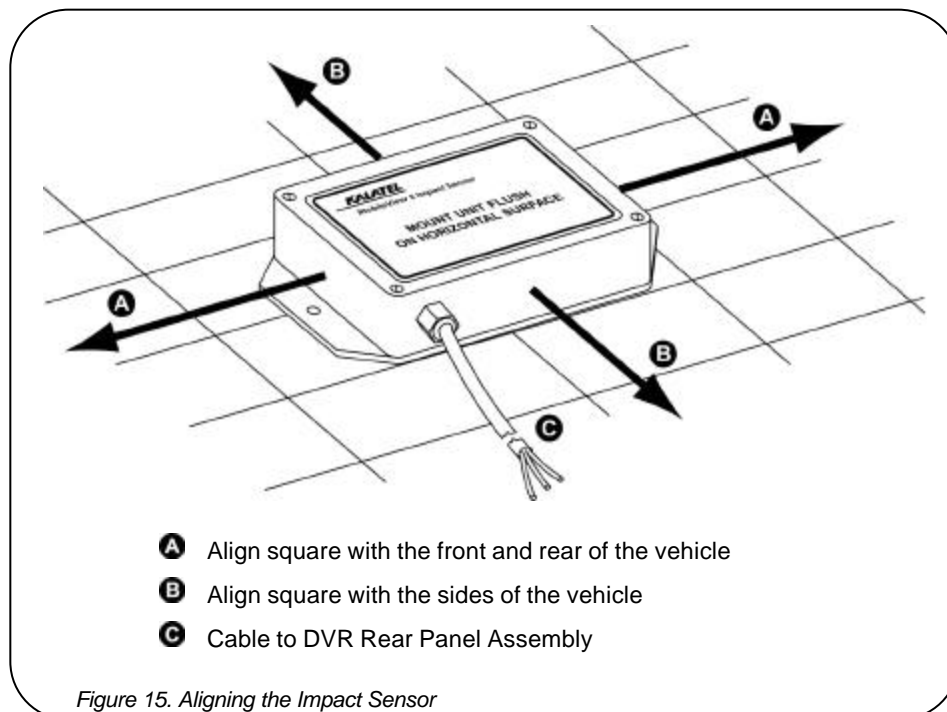
2.6 INSTALLING THE IMPACT SENSOR (OPTIONAL FEATURE)

The Impact Sensor is typically mounted near the DVR, and comes with a 7-foot cable that terminates in the DVR.

**CAUTION:**

- Do not install the Impact Sensor until you have fully tested its functionality on each specific vehicle.
- The Impact Sensor should be mounted on a flat surface and secured to the frame of the vehicle. Mounting surface must be stable and not subject to vibrations.

- 1) Using the Impact Sensor as a template, mark the location of the two mounting holes. The Impact Sensor should be aligned so that it is square with the front and rear of the vehicle. See Figure 15.
- 2) Drill the mounting holes with an appropriate size drill bit.
- 3) Mount the Impact Sensor.
- 4) Route the provided cable to the DVR. Connections to the J11 terminal block on the DVR Rear Panel Assembly are as follows: N/C wire (green or white) to terminal 1, common wire (black) to terminal 2, positive wire (red) to terminal 18.



2.7 INSTALLING THE PANIC BUTTON (OPTIONAL FEATURE)

The Panic Button is typically installed within reach of the driver.

Note: There are two versions of the panic button: one with a key reset and one without. Figure 16 shows the panic button without the key reset; Figure 17 shows the panic button with key reset.

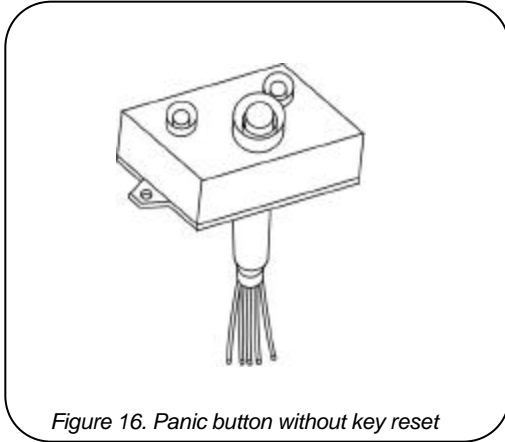


Figure 16. Panic button without key reset

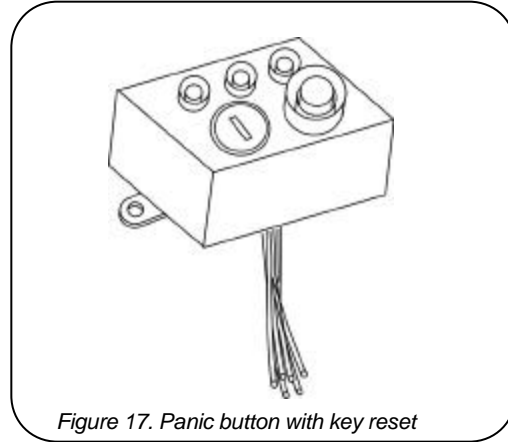


Figure 17. Panic button with key reset

- 1) Using the panic button as a template, mark the location of the two mounting holes.
- 2) Using a 6/32-inch drill bit, drill the mounting holes.
- 3) Using a 3/4-inch drill bit, drill a hole for the panic button's wiring.
- 4) Splice a six-conductor 18-AWG cable to the panic button's wiring.

Note: The panic button with key reset (Figure 17) has six wires, while the panic button without key reset (Figure 16) has only five. The N/C and common wires are both yellow and are interchangeable.

- 5) Route the cable to the DVR. Connections to the J11 terminal of the DVR Rear Panel Assembly are as follows: N/C and common (2 wires, both yellow) to terminals 3 and 4, normal wire (green) to terminal 13, check wire (red) to terminal 15, positive wire (gray) to terminal 18, negative wire (white, present only on the panic button with key reset) to terminal 17.
- 6) Mount the panic button.

2.8 INSTALLING THE MICROPHONE (OPTIONAL FEATURE)

The MobileView microphone (Figure 18) is typically mounted in the headsign area by the driver. Refer to the instructions provided with the microphone for installation procedures. A two-conductor shielded microphone cable and a twisted pair power cable (18 AWG wire is recommended) must be routed from the microphone to the DVR location. The shielded wire is attached at the microphone end only. Also, a service loop should be left at the microphone end (see Figure 29).

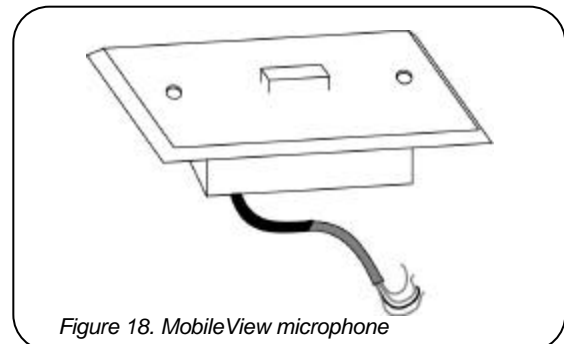
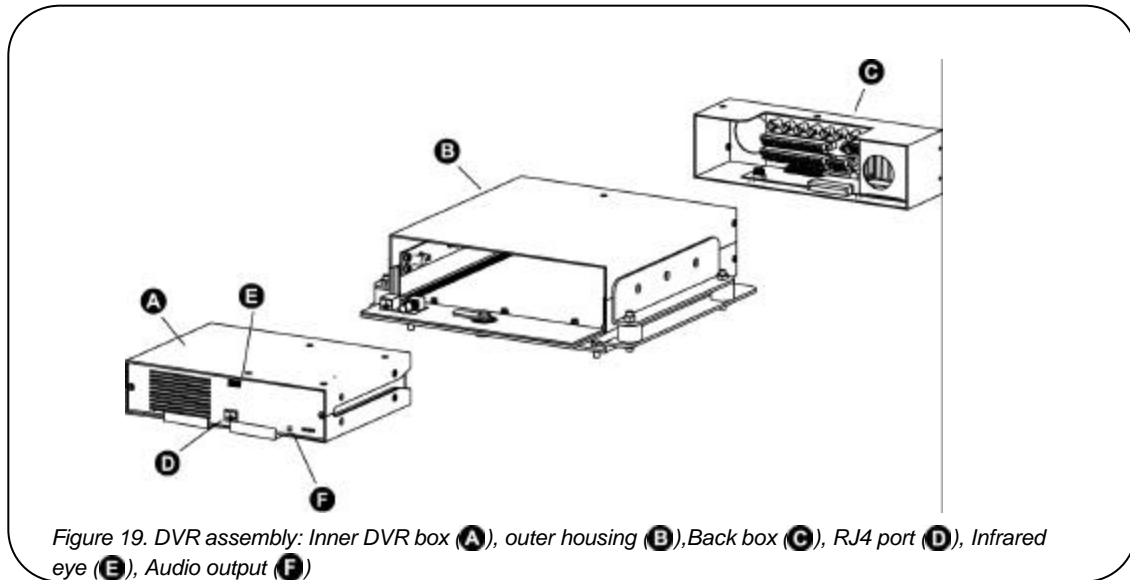


Figure 18. MobileView microphone

3 DVR INSTALLATION AND WIRING

The DVR is housed within a protective outer housing that is mounted to the vehicle. All connections are made through the Rear Panel Assembly. See Figure 19.

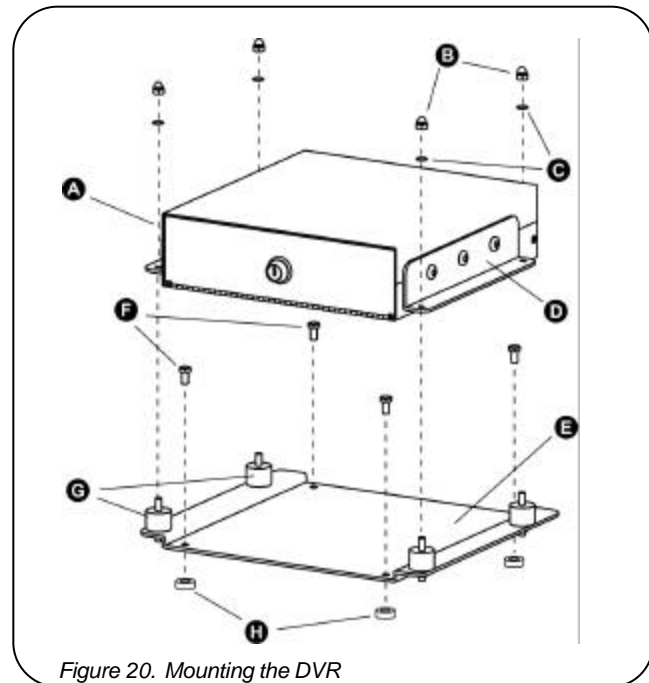


3.1 MOUNTING THE DVR HOUSING

Note: The DVR can be mounted in a variety of orientations (except upside down). However, the mounting location must take into consideration the extra space and clearance required to open the housing door and to remove the DVR.

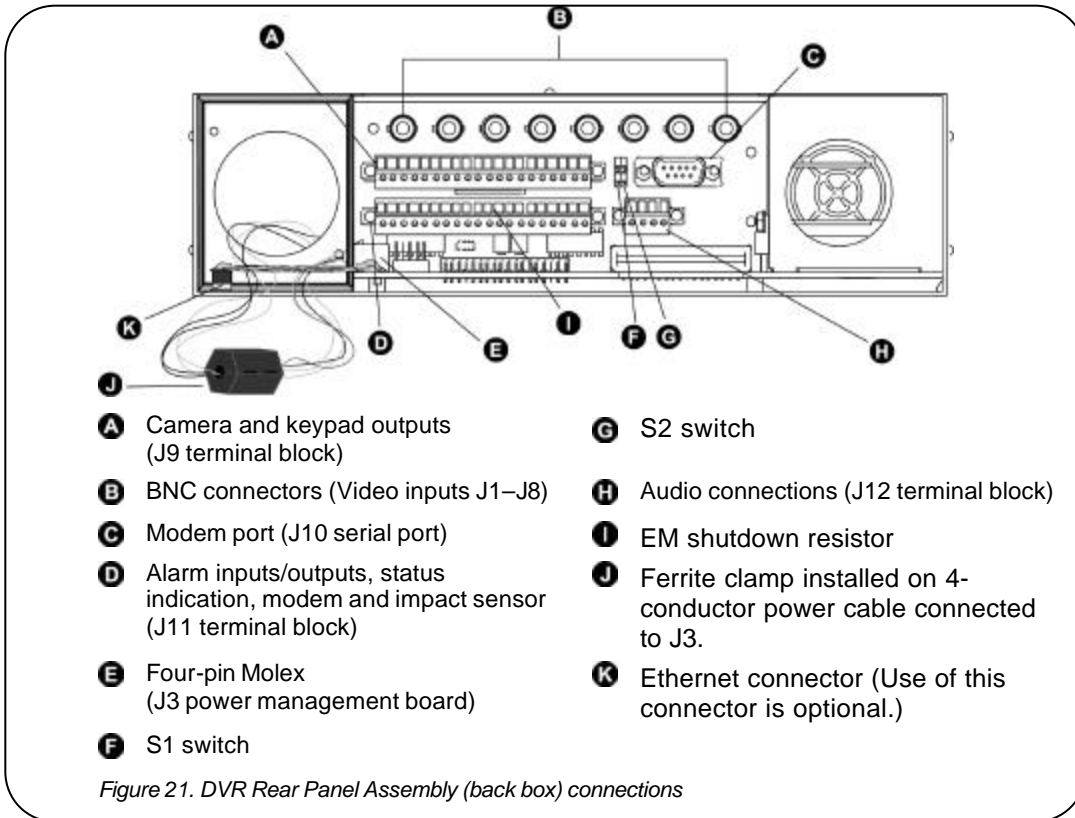
See Figure 20 and perform the following:

- 1) Remove the four acorn nuts (B) and locking washers (C) from the top side of the DVR outer housing (A).
- 2) Remove the DVR housing and place it aside until the mounting plate (E) has been installed. Do not remove the vibration isolators (G) or the bolts and nuts holding them in place.
- 3) Mount the mounting plate to the vehicle using four nuts and bolts (not provided); 1/4-20 inch bolts (F) are recommended. 1/4-inch spacers (H) are provided and should be used beneath the mounting plate, if needed to allow door to fully open.
- 4) Place the DVR outer housing back onto the mounting plate by lining up the holes in the mounting brackets (D) with the bolts in the vibration isolators.
- 5) Reattach the four acorn nuts and locking washers.



3.2 WIRING THE DVR

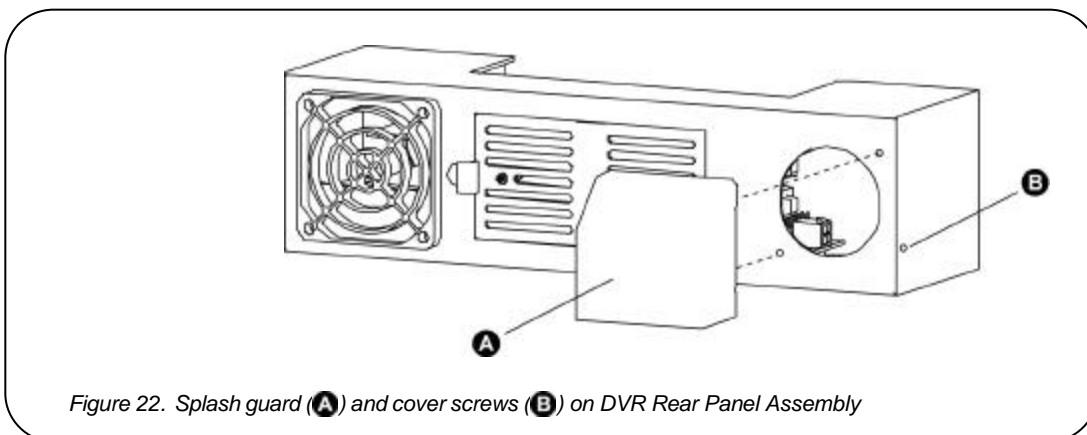
All wire connections between the DVR and auxiliary devices are made through the DVR's Rear Panel Assembly, or "back box" (see Figure 21). Wires will enter through the cable-entry hole protected by the splashguard.



3.2.1 ACCESSING THE DVR REAR PANEL ASSEMBLY

See Figure 22 and perform the following:

- 1) Remove the rear panel assembly's two cover screws.
- 2) Remove the rear panel assembly from the DVR.
- 3) Remove the splash guard by unscrewing the two screws inside the connection box.



Note: Use splash guard only when unit is mounted in an exposed area.

Camera and Keypad Wiring

Note: If you are installing the keypad further than 100 feet from the DVR, set the S1 switch (F in Figure 21) to the down position. If you are installing eight cameras (system maximum), set the S2 switch (G in Figure 21) to the down position.



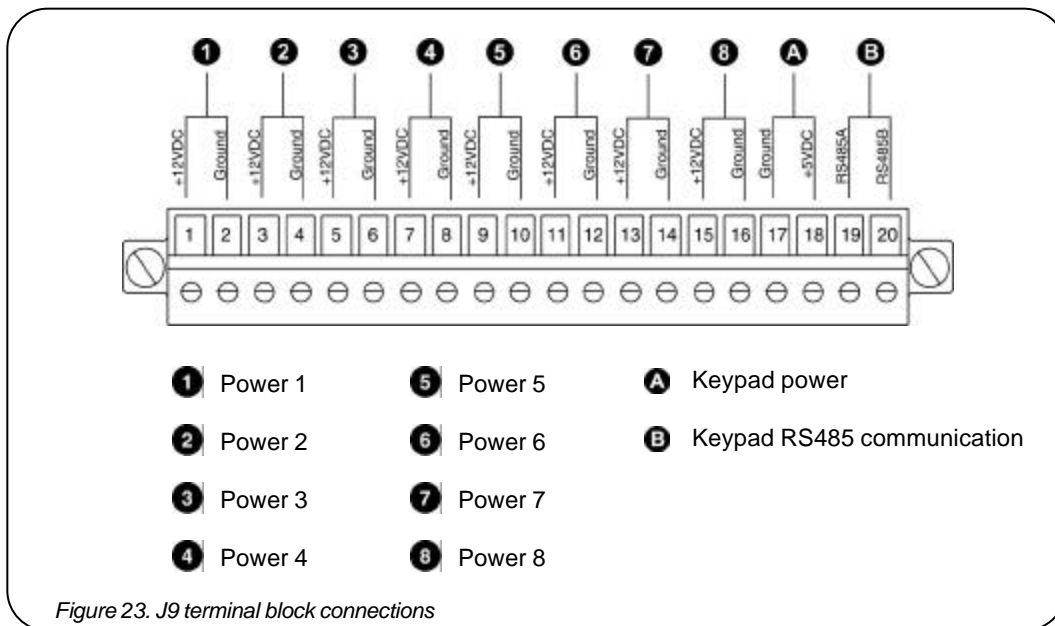
CAUTION:

Be very careful that you do not confuse the J9 terminal block with the J11 terminal block. The J9 is positioned above the J11 and is strictly for camera and keypad connections; the J11 terminal block is strictly for input/output wiring.

3.2.1.1 J9 TERMINAL BLOCK CONNECTIONS

The J9 terminal block provides power to the vehicle's cameras and the keypad.

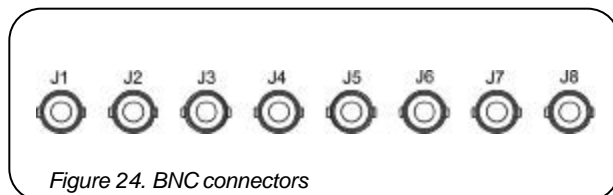
- 1) Remove the J9 terminal block (A in Figure 21) from the rear panel assembly by loosening its mounting screws and pulling it out of its socket.
- 2) Make connections as shown in Figure 23. To make connections, strip each wire 3/8 of an inch, insert it into the appropriate slot, and tighten the terminal screw.
- 3) Reinstall the J9 terminal block.



3.2.1.2 BNC CONNECTIONS

Connect each camera's video output cable to its corresponding BNC connector on the rear panel assembly (see Figure 24). Camera 1 connects to J1, camera 2 to J2, etc.

Note: Camera numbers will not always correspond one to one with the BNC connectors. Be sure to connect the appropriate BNC port, according to specific system design.

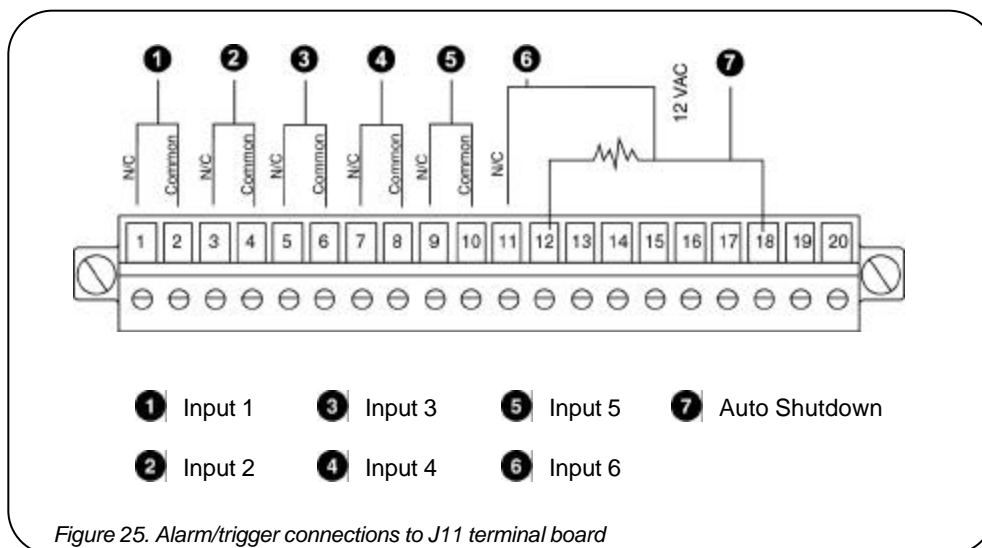


3.2.2 ALARM AND TRIGGER INPUTS

The MobileView system allows for six inputs, which can be defined as either triggers or alarms. The Impact Sensor and Panic Button are both examples of alarm inputs. When the trigger is activated, it will open the normally closed connection, activating the alarm. Refer to the system specific layout for the location and types of inputs used in your installation.

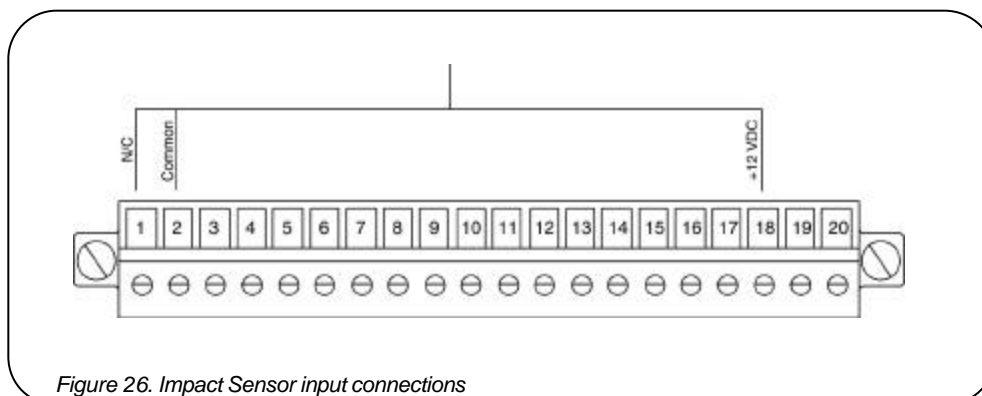
- 1) Remove the J11 terminal block (D in Figure 21) from the rear panel assembly by loosening its mounting screws and pulling it out of its socket.
- 2) Each trigger device must have a normally closed connection with the DVR and be connected as shown in Figure 25. All wires should be stripped 3/8 of an inch.

Note: Terminal 18 also may be used for a panic button or impact sensor (up to three wires can go into terminal 18).



3.2.2.1 IMPACT SENSOR CONNECTIONS

The Impact Sensor's N/C wire (green or white) and common wire (black) connect to one of the pairs of input terminals shown in Figure 26. Its +12-VDC wire (red) connects to terminal 18. See Figure 26.



3.2.2.2 PANIC BUTTON CONNECTIONS

The Panic Button's N/C wire and common wire connect to one of the pairs of input terminals as shown in Figure 27.

Note: The Panic Button also has wires that are used for status outputs. See section 3.2.4.

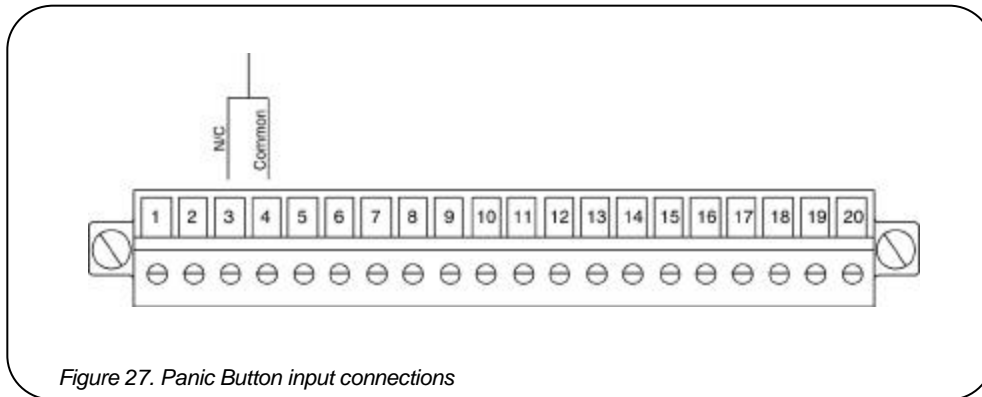


Figure 27. Panic Button input connections

3.2.3 STATUS OUTPUT CONNECTIONS

The MobileView system provides two status outputs on the J11 terminal block for optional use. The most common uses for these outputs are as interfaces to a vehicle relay system or lights. To interface with a vehicle relay system, contact the vehicle manufacturer.

To connect the status lights on the Panic Button to the status outputs, see Figure 28 and perform the following:

- 1) Connect the normal wire (green) to terminal 13.
- 2) Connect the check wire (red) to terminal 15.
- 3) Connect the positive wire (gray) to terminal 18. Use terminal 19 if 18 is unavailable.
- 4) If you are installing a Panic Button with a key reset, connect the negative wire (white) to terminal 17.

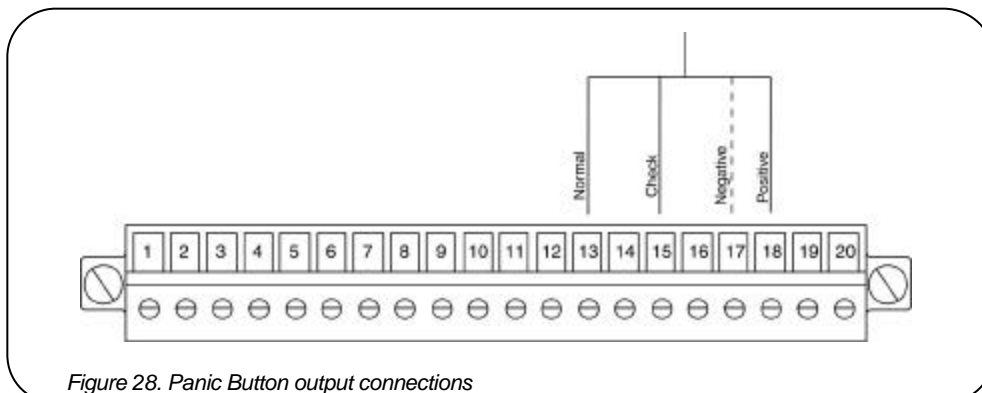
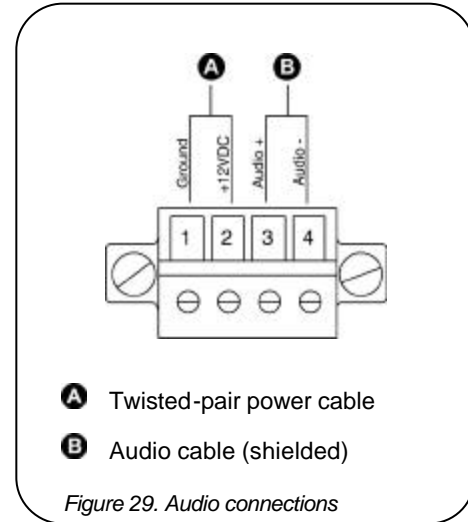


Figure 28. Panic Button output connections

3.2.4 AUDIO CONNECTIONS

- 1) Remove the J12 terminal block from the DVR back assembly (H in Figure 21).
- 2) Connect the audio and power cables from the microphone as shown in Figure 29.

Note: For instructions on making wiring connections at the microphone end, refer to the instructions provided by the manufacturer.



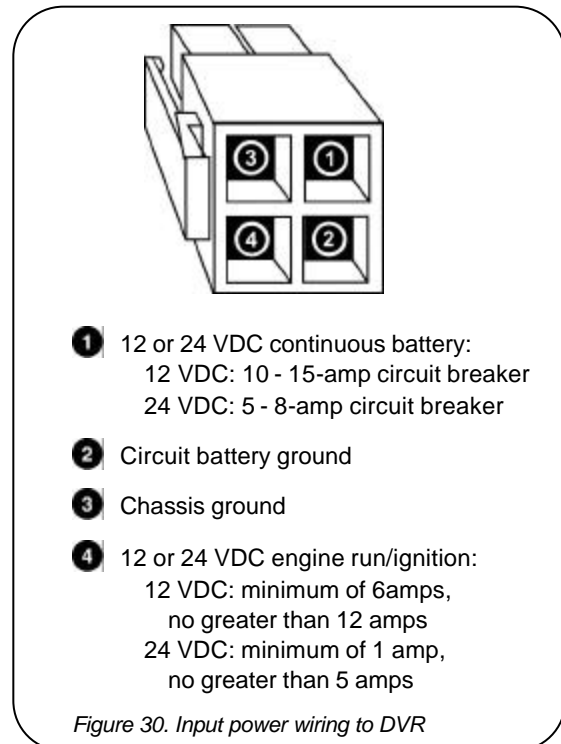
3.2.5 INPUT POWER CONNECTIONS

Power is supplied through the DVR's four-pin Molex connector, located on the DVR Rear Panel Assembly (E in Figure 21). The following connections from the vehicle junction box must be made to the DVR: +24-VDC continuous with 6-amp circuit breaker source, circuit battery ground, chassis ground, and +24-VDC ignition/engine running with source fused not greater than 1 amp. See Figure 30.

- 1) Run a four-conductor 18-AWG wire from the vehicle power source to the DVR location.
- 2) Make connections to the vehicle source (contact the vehicle manufacturer for information on connecting to the vehicle power source).
- 3) Crimp the wire pins using a Molex crimper, and make connections to the DVR's four-pin Molex according to Figure 30.
- 4) Test the four-pin Molex wire-harness for power (both continuous 24 VDC and engine running/ignition).

Note: For a working definition of engine running/ignition, contact the vehicle manufacturer.

- 5) Plug the Molex into the J3 power management board on the DVR Rear Panel Assembly (E in Figure 21).
- 6) Check the power connections with a voltage meter to ensure correct polarity and connections.



3.3 REASSEMBLING THE DVR (IF NECESSARY)

- 1) Make sure that all wire connections are secure and that all terminal boards are securely fastened to the rear panel assembly. One and one-quarter inch connectors can be used.
- 2) Reconnect the splash guard to the rear panel assembly following the contour of the wiring. See Figure 22.
- 3) Reconnect the rear panel assembly to the DVR outer housing (see Figure 19), or proceed to section 4 (testing and verifying connections) and reinstall the connection box when testing is complete.

4 TESTING CONNECTIONS

The cameras, inputs, and outputs are configured and tested using a MobileView Test Kit.

4.1 CONNECTING THE TEST KIT TO THE DVR

See Figure 31 and perform the following:

- 1) Remove the DVR from the outer housing and set it aside until testing is complete.
- 2) Remove the Rear Panel Assembly from the outer housing.
- 3) Plug the provided 10-foot cable's Molex connector into the interface box (A).
- 4) Plug the Molex connector on the other end of the 10-foot cable into the test kit (B). If more length is necessary, use the 50-foot expansion cable (C).
- 5) Plug the interface box (label up) into the DVR through the edge connector (D). If the green LED on the interface box illuminates, skip to step 8. If the LED does not illuminate, proceed to step 6.
- 6) If the green LED on the interface does not illuminate, unplug the four-pin Molex power connection on the DVR and plug it into the receptacle end of the interface cable (E and F). Power (+24 VDC) must be supplied to the DVR. Add a ferrite clamp (E) to the 24V power cable at the Molex connector (J3).
- 7) Plug the interface cable Molex connectors into the 4-pin Molex power connection on the DVR and into the side of the interface box (G and H).

The appropriate connections have been made between the DVR and the Test Kit. To view cameras that have not been connected to the DVR, the input will have to be attached directly to the test kit:

- 8) Use the 50-foot expansion cable and plug the camera BNC into the BNC connector on the test kit (I).
- 9) Press the REVERSE button located below the monitor to switch the camera's video from the DVR chassis to the Test Kit.

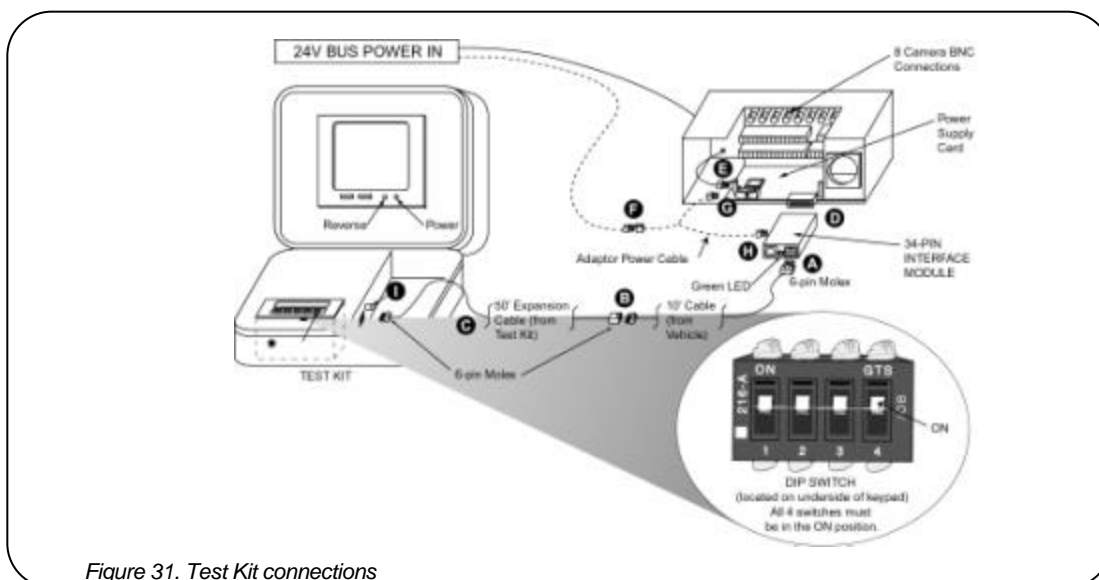


Figure 31. Test Kit connections

4.2 SYSTEM TESTING

When all of the connections have been made between the DVR and the test kit, it is possible to test the inputs, outputs, and camera fields of view. All system testing is performed using the test kit's keypad.

Note: Holding the ◀ and ▶ keys and pressing ▲ or ▼ will illuminate the keypad screen.

- 1) Press the POWER button located below the test kit's monitor (see Figure 31). The keypad will display the opening screen (Figure 32).



Figure 32. Keypad opening screen

- 2) Press and hold the ★ key until the keypad displays the Enter Access Code screen (Figure 33).

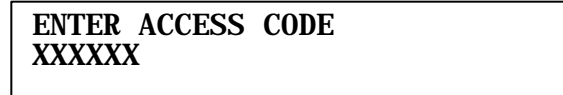


Figure 33. Enter Access Code screen

- 3) Press the following sequence of keys: ▲, ◀, ▼, ▶, ★, ▲. When the access code has been entered, the Test DVR display (Figure 34) will appear.

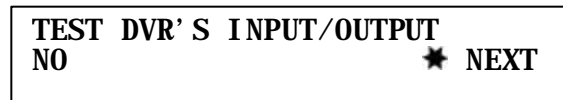


Figure 34. Test DVR display

Note: If an access code is not entered within 10 seconds, the screen will revert to the opening display.

4.2.1 TESTING INPUTS

Note: Each particular system may have a different number of inputs. Be sure to test the connections to each of the inputs in your system. If your system does not include any inputs, skip this section and proceed to section 4.2.3.

- 1) At the Test DVR display (Figure 34), press the ▲ key to advance to the second Test DVR display (Figure 35).



Figure 35. Test DVR display

- 2) Press the ★ key to advance to the Current Status menu (Figure 36), which shows the status of the system's inputs. According to the wiring shown in section 3.2.3, input 1 is used for the Panic Button and input 2 is used for the Impact Sensor. These are both normally closed connections and should be represented on the keypad as 1L and 2L. Inputs 3 through 6 are not used and are represented on the keypad as 3H, 4H, 5H, 6H ("L"—closed, "H"—open).

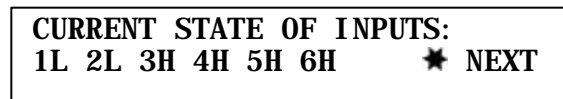


Figure 36. Current Status menu

- 3) Test the Panic Button by activating its switch. The keypad should now show input 1 as open (Figure 37). If the keypad does not show input 1 as open, check the Panic Button's connections to the DVR (see section 3.2.3.2).

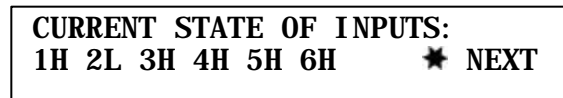


Figure 37. Current Status menu—input 1 open

- 4) De-activate the Panic Button's switch, and the keypad should again display input 1 as closed (see Figure 36).
- 5) Test the Impact Sensor by tapping on the front end of the sensor. Watch the keypad while tapping; it should display input 2 as open (Figure 38). When you stop tapping the sensor, the keypad should reset to showing input 2 as closed (Figure 36). If the keypad does not show input 2 opening and closing, check the Impact Sensor's connections to the DVR (see section 3.2.3.1).
- 6) Continue testing until all inputs have successfully been connected to the DVR.

```

CURRENT STATE OF INPUTS:
1L 2H 3H 4H 5H 6H      ★ NEXT
    
```

Figure 38. Current Status menu—input 2 open

4.2.2 TESTING OUTPUTS

- 1) From the Current Status menu (Figure 38), press ★ to proceed to the Test Outputs menu (Figure 39).
- 2) Press ▲ to test output 2 (Figure 40). If a status light is connected to output 2, the light should illuminate.
- 3) Press ▲ again to test output 1 (Figure 41). If a status light is connected to output 1, the light should illuminate.
- 4) Press ▲ again to test both outputs (Figure 42). Both lights should illuminate.

```

TO TEST OUTPUTS PRESS UP
OUT 1 <OFF> OUT 2 <OFF> ★ NEXT
    
```

Figure 39. Test Outputs menu

```

TO TEST OUTPUTS PRESS UP
OUT 1 <OFF> OUT 2 <ON> ★ NEXT
    
```

Figure 40. Test Outputs menu—testing output 2

```

TO TEST OUTPUTS PRESS UP
OUT 1 <ON> OUT 2 <OFF> ★ NEXT
    
```

Figure 41. Test Outputs menu—testing output 1

```

TO TEST OUTPUTS PRESS UP
OUT 1 <ON> OUT 2 <ON> ★ NEXT
    
```

Figure 42. Test Outputs menu—testing both outputs

4.2.3 DVR STATUS

- 1) To display the status of the DVR, press ★ from the Test Outputs menu (Figure 42). The screen will display whether the ignition is on or off, the current temperature of the DVR (in Celsius), and whether the DVR door is open or closed.

Figure 43 shows the keypad screen without a DVR in the system. Figure 44 shows the keypad screen with a DVR in the system.

```

IGNITION OFF      TEMP ---- C
DOOR -----      ★ NEXT
    
```

Figure 43. DVR status menu—no DVR in system

```

IGNITION ON      TEMP  26C
DOOR CLOSED      ★ NEXT
    
```

Figure 44. DVR status menu—DVR in system

- 2) Press ★ again to return to the Test DVR display (Figure 34).

4.3 VIEWING CAMERAS

- 1) Press **★** to advance to the Select Camera display (Figure 45).
- 2) Push **▲** to enter the Select Camera display for camera 1 (Figure 46).
- 3) Use the **▲▼** keys to scroll through the cameras. This will enable you to cycle through all eight camera ports, viewing the video feed from each camera on the test kit's LCD screen.

Note: The camera number shown on the keypad refers to the BNC port connection and not necessarily to the assigned number of the camera in the system. For example, whichever camera is plugged into the DVR's BNC port 1 will be displayed as camera 1 on the keypad.

- 4) Adjust and set the field of view for each camera (see section 2.4.3). Focus the camera if necessary.
- 5) After viewing and adjusting all cameras in the system, scroll back with the **▲** key to the first Select Camera display (Figure 45).
- 6) Press the **★** key until you reach the exit menu (Figure 47).
- 7) To exit, select "yes" and press the **★** key. To return to another menu, press the **▼** key and then use the **★** key to advance to the desired menu.
- 8) When finished using the test kit, turn the monitor off before removing the 34-pin interface box from the DVR chassis.

| | |
|--|---------------|
| SELECT CAMERA TO SETUP NONE | ★ NEXT |
|--|---------------|

Figure 45. Select Camera display

| | |
|---|---------------|
| SELECT CAMERA TO SETUP 1 | ★ NEXT |
|---|---------------|

Figure 46. Select Camera display—camera 1

| | |
|---|-----------------------------|
| DO YOU WANT TO EXIT? YES | Y/N ★ NEXT |
|---|-----------------------------|

Figure 47. Exit menu

5 DVR CONFIGURATION

Onboard programming of the DVR can be performed using either the onboard status keypad or the MobileView Test Kit. Using the status keypad enables you to manually enter information to configure the vehicle's DVR. Using the Test Kit allows you to configure the DVR, and also to copy and save the DVR configuration data and transfer it to another vehicle.

If you are using a Test Kit for DVR configuration, refer to section 4.1 to connect the Test Kit to the DVR.

All DVR configuring is performed using the five keys on the keypad (see Figure 48). Use the ★ key to advance through the menus. Use the ◀▶ keys to move from space to space when inputting data. Use the ▲▼ keys to scroll through alphanumeric characters and symbols.

Note: To alter the contrast of the keypad LCD display window, simultaneously press the ◀▶ keys and at the same time use the ▲▼ keys to adjust the contrast.

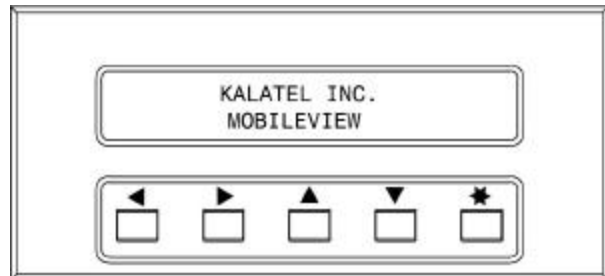


Figure 48. MobileView keypad

5.1 SYSTEM CONFIGURATION

Note: If you are using the onboard status key pad, skip step 1.

- 1) Press the POWER button located below the Test Kit's monitor. The keypad will display the opening screen (Figure 49).
- 2) Press and hold the ★ key until the keypad displays the Enter Access Code screen (Figure 50).
- 3) Press the following sequence of keys: ▲, ◀, ▼, ▶, ★, ▲. When the access code has been entered, the Test DVR display (Figure 51) will appear.

Note: If an access code is not entered within 10 seconds, the screen will revert to the opening display.

- 4) At the Test DVR display (Figure 51), press the ★ key to advance to the Select Camera menu (Figure 52).



Figure 49. Opening screen

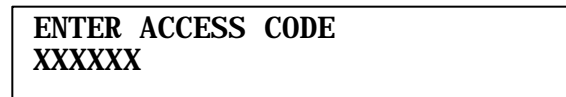


Figure 50. Enter Access Code screen

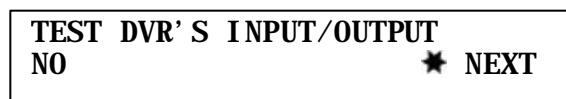


Figure 51. Test DVR display

5.1.1 CAMERA SETUP MENUS

- 1) At the Select Camera menu (Figure 52), use the ▲▼ keys to select the camera you wish to set up. Press the ★ key to advance to the Camera Type menu (Figure 53).

Note: Pressing the ★ key without specifying a camera will take you directly to the input setup menus (section 5.1.2)

- 2) Use the ▲▼ keys to define the camera location as disabled, monochrome, or color. If a camera is active in a system, either color or monochrome must be selected. Press the ★ key to advance to the Camera Name menu (Figure 54).

- 3) Enter the camera name by using the ▲▼ keys to select the alphanumeric characters and the ◀▶ keys to move from character to character. The name can be up to 15 characters. Press the ★ key to advance to the Capture Rate menu (Figure 55).

- 4) Select the capture rate by pressing the ▲▼ keys. You can select slow, normal, or fast. Press the ★ key to advance to the Picture Quality menu (Figure 56).

Note: The capture-rate programming feature of any camera in the system depends on the capture rate of the other cameras. Therefore, if you want camera 1 to capture images at a faster rate than other cameras in the system, you must set camera 1's capture rate to fast and the other cameras' capture rates to normal or slow.

- 5) Select the picture quality by pressing the ▲▼ keys. You can select low, medium, or high. Press the ★ key to advance to the Trigger Capture Rate menu (Figure 57).

- 6) Select the trigger capture rate (for example, the rate at which the DVR records images when the panic button is pressed) by pressing the ▲▼ keys. You can select slow, medium, or fast. Press the ★ key to advance to the Trigger Picture Quality menu (Figure 58).

Note: The trigger capture-rate programming feature of any camera in the system depends on the capture rate of the other cameras. Therefore, if you want camera 1 to capture images at a faster rate than other cameras in the system during a trigger event, you must set camera 1's trigger capture rate to fast and the other cameras' trigger capture rates to normal or slow.

```

SELECT CAMERA TO SETUP
NONE                               ★ NEXT
  
```

Figure 52. Select Camera menu

```

CAMERA 1 TYPE
DISABLED                             ★ NEXT
  
```

Figure 53. Camera Type menu

```

CAMERA 1 NAME
<CAMERA 1 >                         ★ NEXT
  
```

Figure 54. Camera Name menu

```

CAM 1 CAPTURE RATE
NORMAL                               ★ NEXT
  
```

Figure 55. Capture Rate menu

```

CAM 1 PICTURE QUALITY
MEDIUM                              ★ NEXT
  
```

Figure 56. Picture Quality menu

```

CAM 1 TRIG. CAPTURE RATE
SLOW                                 ★ NEXT
  
```

Figure 57. Trigger Capture Rate menu

- 7) Select trigger picture quality (resolution) by pressing the ▲▼ keys. You can select low, medium, or high. Press the ★ key to return to the Select Camera menu (Figure 52).
- 8) In the Select Camera menu, use the ▲▼ keys to select the next camera.
- 9) When you have finished configuring cameras, use the ▲▼ keys in the Select Camera menu (Figure 52) to return the selection to “none,” and press the ★ key to advance to the Select Input menu (Figure 59).

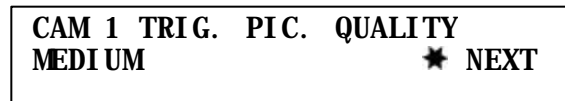


Figure 58. Trigger Picture Quality menu

5.1.2 INPUT SETUP MENUS

- 1) At the Select Input menu (Figure 59), use the ▲▼ keys to select the input you wish to set up. Press the ★ key to advance to the Input Type menu (Figure 60).

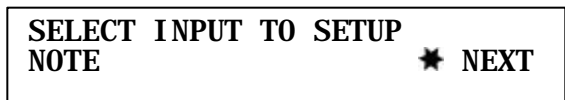


Figure 59. Select Input menu

Note: Pressing the ★ key without specifying an input will take you directly to the transmission option menus (section 5.1.3).

- 2) Use the ▲▼ keys to enter whether or not an input is an alarm, is a trigger, or is disabled. Press the ★ key to advance to the Input Name menu (Figure 61).

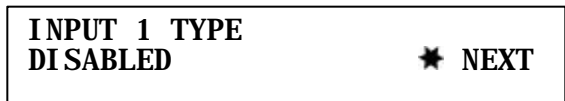


Figure 60. Input type menu

Note: An input designated as an alarm will tag images (create an event file for images), notify for transmission (if enabled), increase the capture rate to fast, and increase the resolution to high. An input designated as a trigger does not tag images, but can be used to program a change in resolution or capture rate when that input is activated.

- 3) Enter the input name by using the ▲▼ keys to select the alphanumeric characters and the ◀▶ keys to move from character to character. The input name can be up to 15 characters. Press the ★ key to advance to the Input Pre Alarm Time menu (Figure 62).

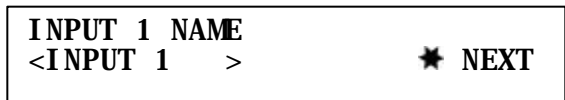


Figure 61. Input Name menu

- 4) Use the ▲▼ keys to enter the input's pre-alarm time in the system (00 seconds to 10 minutes). Press the ★ key to advance to the Input Post Alarm Time menu (Figure 63).



Figure 62. Input Pre Alarm Time menu

- 5) Use the ▲▼ keys to enter the input's post-alarm time in the system (00 seconds to 10 minutes). Press the ★ key to advance to the Group Cameras menu (Figure 64).

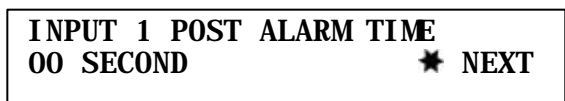


Figure 63. Input Post Alarm Time menu

- 6) Use the ▲▼ keys to select the cameras you want grouped to the input and the ◀▶ keys to move to the next camera. The images from the camera grouped to the input will be tagged when an alarm or trigger is activated. Press the ★ key to advance to the Input Notify menu (Figure 65).

Note: Group cameras to an input only if the input is enabled in the system as either an alarm or a trigger.

Note: Grouping will have a different effect on an alarm than on a trigger. If the input is an alarm, the grouped cameras will begin taking pictures at the highest resolution and the fastest rate. ONLY GROUPEd CAMERAS WILL TAKE PICTURES IF AN ALARM IS ACTIVATED. If the input is a trigger, all cameras will continue to take pictures, but the grouped cameras will have priority and take more pictures.

- 7) Use the ▲▼ keys to select whether or not you want the input to notify when there is an alarm. If you select this option, the modem will dial the central station when the alarm is activated. Press the ★ key to return to the Select Input menu (Figure 59).
- 8) In the Select Input menu, use the ▲▼ keys to select the next input.
- 9) When you have finished configuring inputs, use the ▲▼ keys in the Select Input menu to return the selection to “none, ” and press the ★ key to advance to the Setup Transmission menu (Figure 66).

```

GROUP CAMERAS TO INPUT 1
1 2 3 4 5 - - -      ★ NEXT
  
```

Figure 64. Group Cameras menu

```

INP. 1 NOTIFY ON ALARM?
NO                          ★ NEXT
  
```

Figure 65. Input Notify menu

5.1.3 TRANSMISSION OPTION MENUS

If your system includes the transmission option, please refer to the Transmission Manual. If you are not using the transmission option, perform the following steps:

Use the up arrow key ▲ to set the answer to “Setup Transmission?” to “yes” (see Figure 66), and press the ★ to advance to the “Transmission Modem” screen. Ensure that the display reads, “Not Used.” Press the ★ key.

The “Central Station Number” screen appears. Leave it blank, and press the ★ key.

```

SETUP TRANSMISSION?
YES                      ★ NEXT
  
```

```

TRANSMISSION MODEM IS:
NOT USED                 ★ NEXT
  
```

```

CENTRAL STATION NUMBER:
<                       >      ★ NEXT
  
```

Figure 66. Setup Transmission Menu

The “Central IP Address” display appears. Leave it blank, and press the **★** key.

| | |
|--|---------------|
| CENTRAL IP ADDRESS: ____ . ____ . ____ . ____ | ★ NEXT |
|--|---------------|

The “Subnet Mask” display appears. Enter the following: 255.255.000.000.

| | |
|---------------------------------|---------------|
| SUBNET MASK: 255.255.000.000 | ★ NEXT |
|---------------------------------|---------------|

Figure 66. Setup Transmission Menu (continued)

5.1.4 SYSTEM VARIABLE SETUP MENUS

- 1) If you want to set up system variables, use the **▲▼** keys at the Setup System Variables menu (Figure 67) to select “yes,” and press the **★** key to advance to the System Capture Rate menu (Figure 68). To skip system variables setup, press the **★** key while “no” is selected.

| | |
|--------------------------------|---------------|
| SETUP SYSTEM VARIABLES? YES | ★ NEXT |
|--------------------------------|---------------|

Figure 67. Setup System Variables menu

- 2) Use the **▲▼** keys to select the fields per second (fps) rate.

| | |
|------------------------------|---------------|
| SYSTEM CAPTURE RATE 4 FPS | ★ NEXT |
|------------------------------|---------------|

Figure 68. System Capture Rate menu

If you are programming a MobileView II system, you can select between 0.25 fps (one image every 4 seconds) and 8 fps (eight images per second).

If you are programming a MobileView III system, the capture rate capabilities are tripled. However, to ensure the keypad’s backward compatibility, the fps rates on the System Capture Rate menu (Figure 68) are still listed at between 0.25 and 8 fps. See Table 1 to set the capture rate for a MobileView III system.

Table 1. MobileView III fps conversion chart

| Capture Rate listed on System Capture Rate menu | Target Capture Rate for MobileView III system |
|---|---|
| 8 fps | 24 fps |
| 7 fps | 21 fps |
| 6 fps | 18 fps |
| 5 fps | 15 fps |
| 4 fps | 12 fps |
| 3 fps | 9 fps |
| 2 fps | 6 fps |
| 1 fps | 3 fps |
| 0.75 fps | 2 fps |
| 0.5 fps | 2 fps |
| 0.25 fps | 1 fps |

- 3) Press the **★** key to advance to the DVR Shutdown Delay menu (Figure 69).
- 4) Use the **▲▼** keys to set the DVR shutdown delay (the length of time the cameras will continue to take pictures after the vehicle has been turned off). You can select 00 to 50 minutes. Press the **★** key to advance to the Audio Enable menu (Figure 70).
- 5) Use the **▲▼** keys to set the audio enable. Press the **★** key to advance to the Storage Time menu (Figure 71).
- 6) Use the **▲▼** keys to enter the minimum number of days (0 – 9) that surveillance images will be protected from being overwritten. Press the **★** key to advance to the Storage Time for Alarms menu (Figure 72).

Note: When the DVR is unable to comply with the minimum you enter, you will be notified by a red light on the Panic Button's status output. Keep in mind that storage time will vary depending on resolution and frames per second.

- 7) Use the **▲▼** keys to enter the minimum number of days (0 – 90) that images tagged from alarms will be protected from being overwritten. Press the **★** key to advance to the Daylight Savings menu (Figure 73).

Note: When the DVR is unable to comply with the minimum you enter, you will be notified by a red light on the Panic Button's status output (if a Panic Button is used).

- 8) If you want the DVR to automatically adjust for daylight-saving time, use the **▲** key to select "yes." Press the **★** key to return to the Setup System Variables menu (Figure 67).
- 9) Use the **▲** key to return the selection to "no," and press the **★** key to advance to the Setup Vehicle Variables menu (Figure 74).

5.1.5 SET UP VEHICLE VARIABLES

- 1) If you want to set up the system variables, use the **▲▼** keys at the Setup Vehicle Variables menu (Figure 74) to select "yes," and press the **★** key to advance to the Enter Vehicle ID menu (Figure 75). To skip vehicle variables setup, press the **★** key while "no" is selected.
- 2) Enter the vehicle title by using the **▲▼** keys to select the alphanumeric characters and the **◀▶** keys to move from

| | |
|---------------------------|---------------|
| DVR SHUTDOWN DELAY | ★ NEXT |
| 00 MINUTES | |

Figure 69. DVR Shutdown Delay menu

| | |
|---------------------|---------------|
| AUDIO ENABLE | YES/NO |
| NO | ★ NEXT |

Figure 70. Audio Enable menu

| | | |
|---|---------------|---------------|
| MINIMUM STORAGE TIME FOR SURVEILLANCE? | 7 DAYS | ★ NEXT |
|---|---------------|---------------|

Figure 71. Storage Time menu

| | | |
|---|----------------|---------------|
| MINIMUM STORAGE TIME FOR ALARMS? | 30 DAYS | ★ NEXT |
|---|----------------|---------------|

Figure 72. Storage Time for Alarms menu

| | | |
|--|------------|---------------|
| AUTO ADJUST FOR DAYLIGHT SAVINGS? | YES | ★ NEXT |
|--|------------|---------------|

Figure 73. Daylight Savings menu

| | | |
|---------------------------------|-----------|---------------|
| SETUP VEHICLE VARIABLES? | NO | ★ NEXT |
|---------------------------------|-----------|---------------|

Figure 74. Setup Vehicle Variables menu

| | |
|----------------------------|---------------|
| ENTER VEHICLE ID | ★ NEXT |
| <VEHICLE ID > | |

Figure 75. Enter Vehicle ID menu

character to character. The input name can be up to 15 characters. Press the **★** key to advance to the Vehicle Password menu (Figure 76).



Figure 76. Vehicle Password menu

- 3) Enter the password for the vehicle's modem by using the **▲▼** keys to select the alphanumeric characters and the **◀▶** keys to move from character to character. The password can be up to 15 characters. Press the **★** key to advance to the DVR IP Address menu (Figure 77).

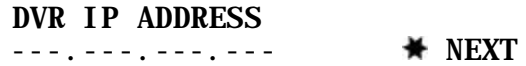


Figure 77. DVP IP Address menu

- 4) Enter the DVR IP address by using the **▲▼** keys to select the alphanumeric characters and the **◀▶** keys to move from character to character. The address must be twelve characters long; for example, if the IP address to be assigned were 10.60.82.1, you would enter 010.060.082.001. Press the **★** key to advance to the Set DVR Date and Time menu (Figure 78).

5.1.6 SET DVR DATE AND TIME MENU

- 1) If you want to set the date and time on the DVR, use the ▲ key to select “yes.” Use the ▲▼ keys to select the alphanumeric characters and the ◀▶ keys to move from character to character. Press the ★ key to advance to the Transfer Data menu (Figure 79).

```

SET DVR DATE AND TIME? Y/N
YES                               ★ NEXT
  
```

Figure 78. Set DVR Date and Time menu

5.2 TRANSFER DATA MENUS

If you are using a Test Kit to configure the DVR, the configuration information that you enter for one vehicle can be stored and transferred to other vehicles. If you are copying data from a vehicle, refer to section 5.2.1. If you are transferring previously copied data to a vehicle, refer to section 5.2.2

Note: Depending on the configuration of your system, these menus may or may not be displayed in the test kit menus.

5.2.1 COPYING DATA FROM A VEHICLE

- 1) At the Transfer Data menu (Figure 79), use the ▲▼ keys to select “From Vehicle.” Press the ★ key to advance to the Copy Data menu (Figure 80).
- 2) The Copy Data menu (Figure 80) asks for your confirmation. Use the ▲▼ keys to select “yes” or “no.” If you selected “yes,” you will be taken to the Exit menu (Figure 85). If you selected “no,” you will be returned to the Transfer Data menu (Figure 79).

```

TRANSFER DATA
FROM VEHICLE                               ★ NEXT
  
```

Figure 79. Transfer Data menu

```

GET COPY OF VEHICLE DATA?
ARE YOU SURE NO                           ★ NEXT
  
```

Figure 80. Copy Data menu

5.2.2 TRANSFERRING DATA TO A VEHICLE

- 1) At the Transfer Data menu, use the ▲▼ keys to select “To Vehicle” (Figure 81). Press the ★ key to advance to the Transfer To Vehicle menu (Figure 82).
- 2) The Transfer To Vehicle menu (Figure 82) asks what kind of data you want to transfer. “All Data” is inclusive and will transfer vehicle-specific data as well as general-configuration data. “Fleet Data” will pass information relating only to the entire fleet (not vehicle specific). Press the ★ key to advance to the Rewrite menu (Figure 83 if transferring “All Data,” Figure 84 if transferring “Fleet Data”).

```

TRANSFER DATA
TO VEHICLE                               ★ NEXT
  
```

Figure 81. Transfer Data menu

```

TRANSFER TO VEHICLE
FLEET DATA                               ★ NEXT
  
```

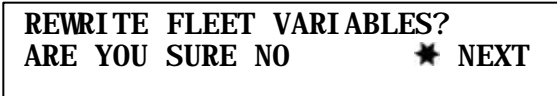
Figure 82. Transfer to Vehicle menu

- 3) The Rewrite menu offers a safety check; it will ask you if you are sure you want to transfer the data you have selected. Use the ▲▼ keys to select “yes” or “no.” Press the ★ key to advance to the next menu. If you selected “yes,” you will be taken to the Exit menu (Figure 85). If you selected “no,” you will be returned to the Transfer Data menu (Figure 79).



REWRITE ALL VEHICLE DATA?
ARE YOU SURE NO ★ NEXT

Figure 83. Rewrite menu—all data



REWRITE FLEET VARIABLES?
ARE YOU SURE NO ★ NEXT

Figure 84. Rewrite menu—fleet variables

5.3 EXITING KEYPAD MENUS

- 1) The Exit menu (Figure 85) asks if you want to exit. Use the ▲▼ keys to select “yes” or “no.” To exit, press the ★ key while the selection is “yes.” To return to the first menu, the Test DVR display (Figure 51), press the ★ key while the selection is “no.”
- 2) If you are using a Test Kit, turn the monitor off before removing the 34-pin interface box from the DVR chassis.



DO YOU WANT TO EXIT? YES Y/N ★ NEXT

Figure 85. Exit menu

6 TROUBLESHOOTING

STATUS INDICATORS:

KEYPAD:

When the DVR is not running, but 24-VDC continuous power is supplied, the keypad will briefly display the Starting screen (Figure 86), and then will change to the MobileView screen (Figure 87).

At DVR boot up, the DVR running screen (Figure 88) will appear. This screen displays the average pictures per second in the upper right-hand corner.

Note: If you have a MobileView II system, the DVR running screen will state "MobileView II," not "MobileView III."

Note: In a MobileView III system, if the time has been set to Daylight-Saving time (see section 5.1.4), the time reading on the DVR running menu will have a semi-colon instead of a colon (e.g., the time would read 8;51 instead of 8:51).

ADJUSTING AUDIO:

To test audio setting, remove front panel and adjust volume as needed using buttons indicated in Figure 89. The left button increases volume, and the right button decreases volume. Audio settings will be displayed on keypad.



Figure 86. Starting screen



Figure 87. MobileView screen

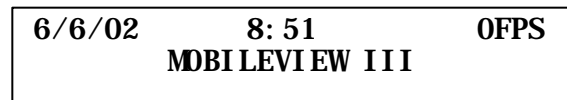


Figure 88. DVR running screen

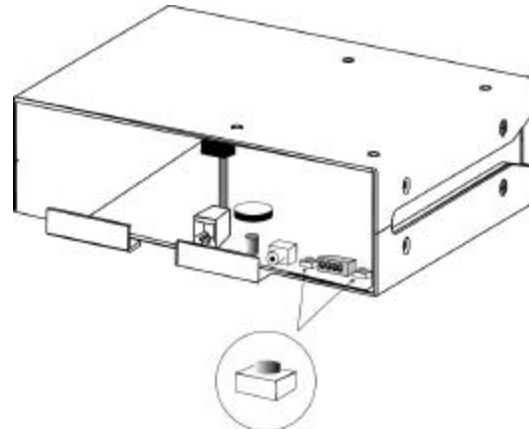


Figure 89. Location of volume-control buttons

OPTIONAL STATUS LIGHTS:

The status lights will alert you to the status of the DVR. DVR status lights should not be confused with DVR LEDs. The LEDs are located on the front of the removable DVR unit. The term *status lights* is used to refer to any lights or LEDs connected to the two outputs from the DVR, such as the MobileView Panic Button. Status lights can be mounted anywhere depending upon the installation and are optional devices.

Note: Some properties customize the DVR status outputs and use another device (such as an IO or PLC) to control the lights.

Output 1 corresponds to Check System and Output 2 corresponds to Normal.

Output 2: the DVR is running and capturing images.

Output 1 and 2: the DVR is running and capturing images with an exception (e.g., loss of signal from a camera). Check the Recorder Log of the DVR to investigate further.

Output 1: the DVR has encountered an error and is not capturing images.

No lights: the DVR is not running.

POSSIBLE CAUSES FOR A “CHECK SYSTEM” STATUS LIGHT ON (in conjunction with a normal status light if installed):

- Camera failure
- Camera enabled but not installed
- Non-transmission system set up to use modem
- Transmission system with modem not present or issues with modem installation
- Event data deleted before the configured minimum time has passed
- Surveillance data deleted before the configured minimum time has passed

REMOVABLE DVR: LEDS FROM LEFT TO RIGHT—4, 3, 2, 1

LED 4: normal capture (flashing green). May still be capturing images if light is off; flashing indicates normal capture. LED off could indicate one camera is not present or is configured incorrectly.

LED 3: processor is writing to the hard drive (flashing green).

LED 2: 12-V power supply present (solid green).

LED 1: 5-V power supply present (solid green).

MOBILEVIEW UNIT DOES NOT START UP WITH VEHICLE IGNITION

If 24 VDC continuous power is present, but the DVR does not start up with vehicle running (no fans can be heard running in the box) use the keypad to verify DVR status. The keypad will display the MobileView menu (Figure 87).

- 1) Enter test mode by using the access password of the keypad.
- 2) Press the ▲ key to select “yes” at the Test DVR menu (Figure 51).
- 3) Press the ★ key three times. The DVR status menu (Figure 43) will be displayed. Make sure that the keypad shows that the ignition is on, the door is closed, and the temperature is below 51° C. If any of these things are not in the proper state, the DVR will not start.

To test input voltage: remove the 4-pin Molex connector from the connection box of the DVR. Verify that when the ignition is off, the only voltage present is 24 VDC continuous (pin #1).

Verify that when the engine is started, both 24 VDC continuous (pin 1) and 24 VDC vehicle running voltage are present (pin 4). The DVR will not start without both power sources.

Visually verify that the pins of the 4-pin Molex connector are properly crimped and inserted in the connector.

MOBILEVIEW UNIT STARTS UP BUT DOES NOT APPEAR TO BE CAPTURING IMAGES

LED LIGHTS 3 AND 4 ON THE FRONT OF THE REMOVABLE DVR ARE NOT ALTERNATELY FLASHING

- 1) The DVR will not capture images if the door of the unit is open or unlocked. Close and lock the door, then turn off the vehicle. After the vehicle has shut down, restart the engine.
- 2) Shortly after the DVR restarts, image capture can be verified by the keypad display or the green status light (or combination of green and red status lights).
- 3) Check the DVR configuration using the keypad. Verify that any DVR camera ports without cameras connections are disabled in the configuration.

0 FPS (FIELDS PER SECOND) DISPLAYED ON THE KEYPAD

- 1) If the display does not refresh from 0 fps, turn off the vehicle, and then restart it.
- 2) If 0 fps is still displayed, check the configuration of the DVR.

MOBILEVIEW OPERATING NORMALLY BUT STATUS LIGHTS ARE NOT ILLUMINATING

All status lights will be turned off after the shutdown display, when the DVR has shutdown completely. The shutdown delay is the number of minutes the DVR will continue to run after the vehicle has been turned off (see section 5.1.4).

The status lights are supplied with 12- or 30-VDC continuous power from the vehicle. Verify that continuous voltage is present at the status light.

The ground for the status lights is supplied by the DVR connection box. To check the ground output with a voltage meter, perform the following:

- 1) Place the positive meter probe onto an unused 12-VDC DVR output on the J9 or J11 terminal block (see Figure 21).
- 2) Place the negative meter probe into terminal 13 of the J11 terminal block.
- 3) Use the keypad or Test Kit to enter test mode. Refer to section 4.2 of this manual to test the outputs.
- 4) Terminal 13 of the J11 terminal block is the normal operation output. Voltage should be observable on the meter when the keypad test output menu displays “on” or “off” (see Figures 39 – 42).

Note: Voltage may vary from +5 VDC to +12 VDC, depending on the type of status indicator installed.

- 5) If voltage is not present, remove any wires that are connected to terminal 13 and repeat steps 1 through 4.
- 6) Repeat steps 1 through 5 for terminal 15 of the J11 terminal block.
- 7) If the vehicle power and the DVR’s output of ground are both present at the light, but the light is not illuminating, it may be necessary to troubleshoot the vehicle wiring or replace the status light.

LOSS OF VIDEO (IN TEST MODE OR IN CAPTURED IMAGES)

CHECK FOR VIDEO AT THE MOBILEVIEW CONNECTION BOX AND THE CAMERA

- 1) If there is no video displayed, verify on the two-pin Molex camera power connector that 12 VDC is present.
- 2) Verify that the power connection on the camera is intact.
- 3) Verify that the power connection on the J9 terminal strip is correct.
- 4) Check the integrity of the coaxial cable and the BNC connectors.
- 5) Ensure that the BNC connectors at the DVR and camera have not been damaged or pulled apart.

CHECK THE INTEGRITY OF THE COAXIAL CABLE

- 1) Disconnect the coaxial cable from the camera and DVR connection box.
- 2) Meter the coaxial cable by placing a jumper from the center conductor (video) of the BNC to the outer part of the BNC (ground).
- 3) Use a meter on the other end of the coaxial cable to check for resistance by placing one probe on the center conductor and the other probe on the outer part of the BNC.
- 4) Remove the jumper and meter one end of the disconnected coaxial cable. There should be no resistance.

VIDEO IS PRESENT AT TEST BUT IS NOT CAPTURED IN THE SURVEILLANCE DATABASE

- 1) Using the LCD keypad, check the setup of the camera port. Be sure that the camera has been enabled in the Camera Setup menus.

NO DISPLAY ON THE LCD KEYPAD

- 1) Verify that the DVR has 24-VDC continuous power at the four-pin Molex connector of the connections box.
- 2) Power down the unit and check the keypad connection at both the connection box and at the keypad. Power up the unit with 24-VDC continuous power. The keypad should show the MobileView opening screen (Figure 49).
- 3) If you are using the Test Kit or using the keypad 10-pin connector, make sure that the 10-pin connector is properly seated on the power management board of the connection box.

MOBILEVIEW UNIT STARTS UP NORMALLY BUT THEN SHUTS DOWN

Note: If configuration changes have been made or if the DVR has been replaced, the DVR will shut down and re-boot to accept configuration changes.

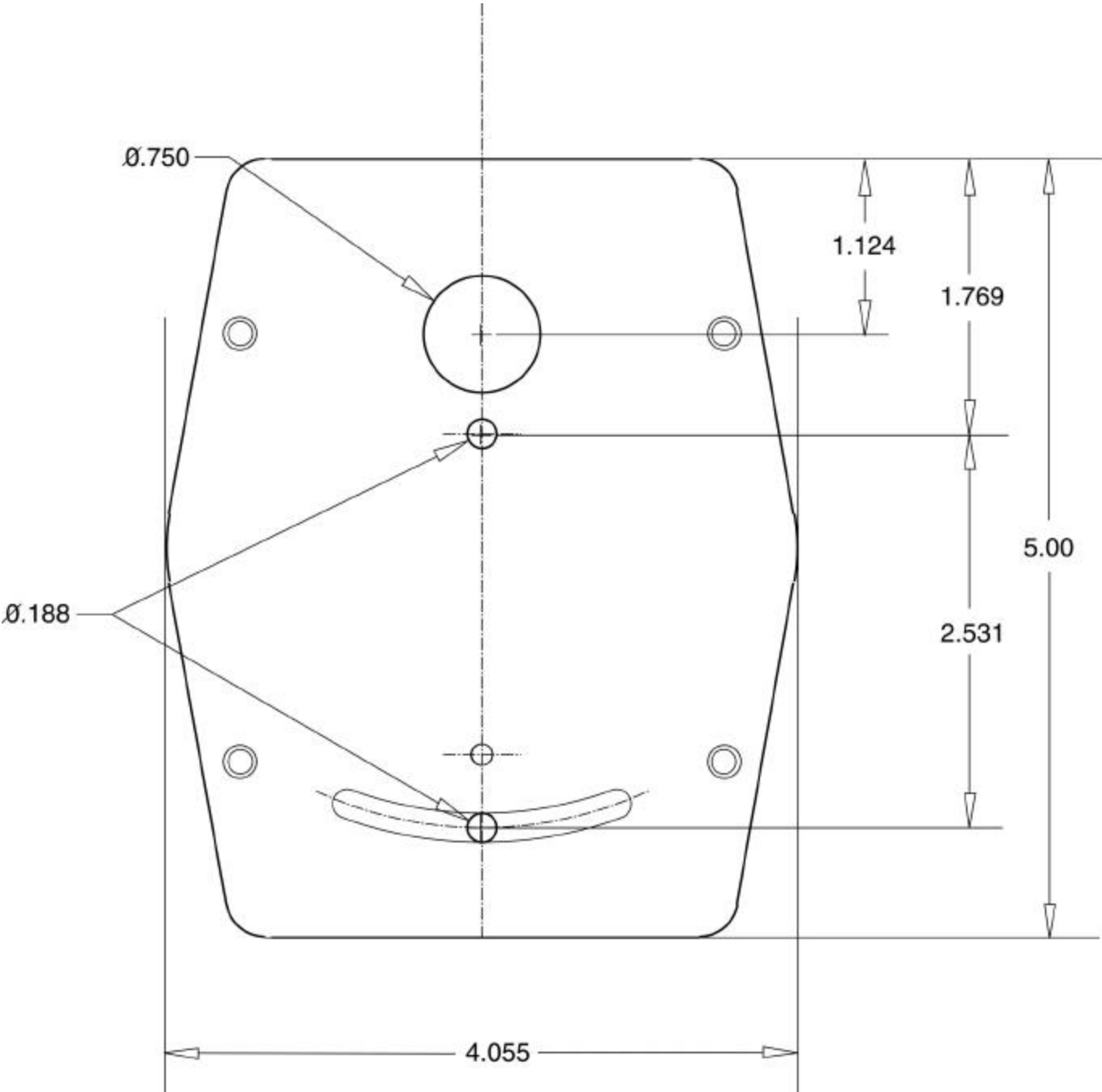
- 1) Check the recorder log to view any error messages (refer to the Central Station manual).
- 2) Use the keypad test mode to view the status of ignition voltage, door sensor, and temperature.

MOBILEVIEW DOES NOT APPEAR TO ACCEPT CHANGES WHILE DOWNLOADING A NEW CONFIGURATION THROUGH THE LCD KEYPAD

The DVR should be running and capturing images before you enter keypad programming. After the user exits the keypad program the DVR will restart and begin using the new configuration. Depending on the amount of changes, this may take several minutes.

- 1) If configuration changes were made while in test mode, start up the DVR and wait until it is capturing images.
- 2) Reenter the keypad password to enter configuration mode.
- 3) Make any necessary changes in the configuration.
- 4) Exit keypad configuration mode. The DVR will shut down and then restart with the new configuration.

APPENDIX A. MOUNTING PLATE TEMPLATE



(All measurements shown in inches)

APPENDIX B. STATUS KEYPAD CONFIGURATION

The status keypad is preset at the factory for 5-VDC power input. If the power input from the vehicle is 12-VDC, or if you are installing more than one keypad on the vehicle, perform the following:

- 1) Using a flat-head screwdriver, carefully pry apart the two halves of the keypad cover (see Figure B1).
 - 2) Locate the J2 jumper and the DIP switch on the circuit board (see Figure B2).
 - 3) If you are changing the power input setting on the keypad from 5 VDC to 12 VDC, gently pull off the jumper and move it down one pin (see Figure B3).
- Note:** The keypad voltage setting (J2 jumper assembly) must match the S1 switch setting inside the DVR on the back box (i.e., it must be 5 VDC in both places or 12 VDC in both places).
- 4) All keypads should be set as slave (switches 1-3, “on,” switch 4, “off”). If it is desired that the keypad be set as master, all 4 switches must be in the “on” position in order to allow transfer of data.

Note: If it is desired that the keypad onboard the bus be set as master, disconnect it before using the test kit.

- 5) Reassemble the keypad and refer to section 2.5 for wiring and mounting instructions.

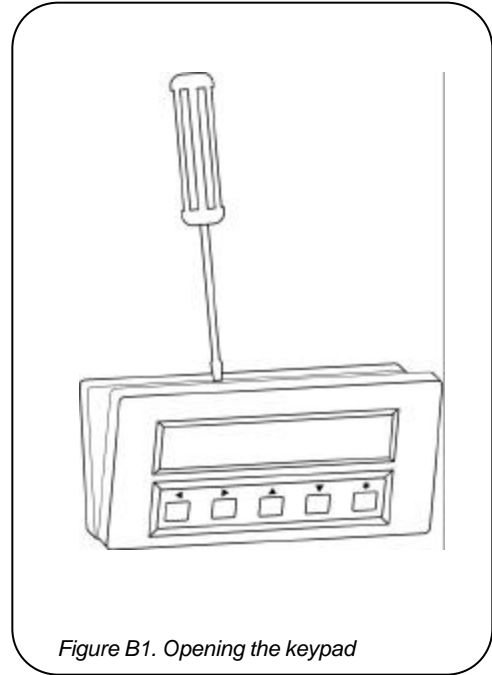


Figure B1. Opening the keypad

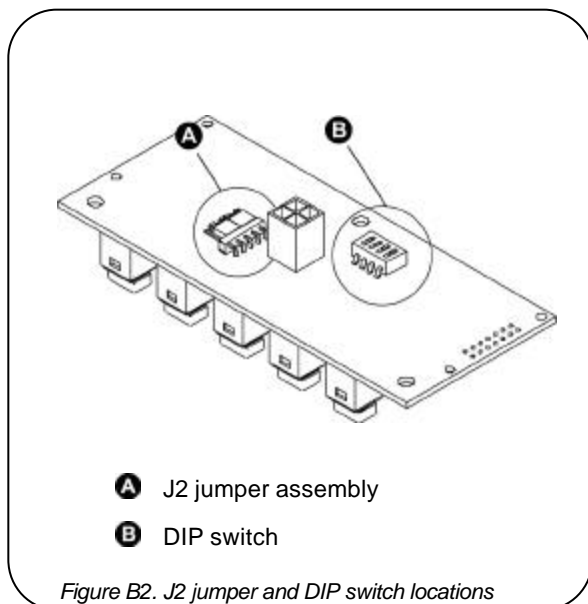


Figure B2. J2 jumper and DIP switch locations

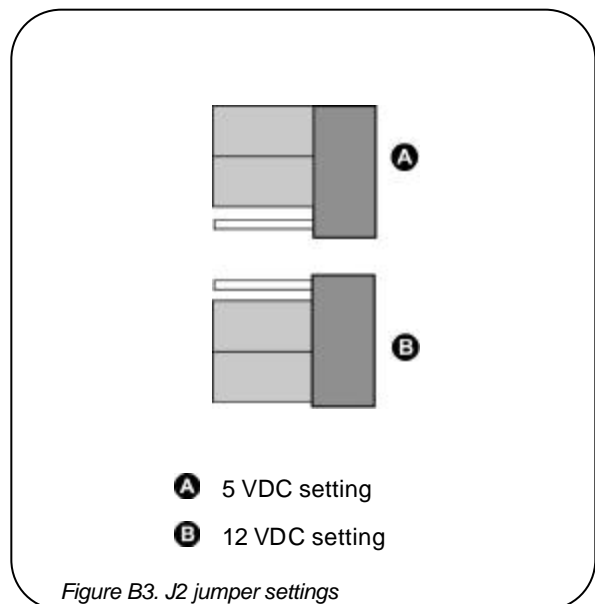


Figure B3. J2 jumper settings

APPENDIX C. INSTALLATION CHECK SHEET

| | | | |
|---------------------|--|-------------------|--|
| Vehicle ID | | Modem ESN Number | |
| DVR Serial Number | | Modem Cell Number | |
| Modem Serial Number | | IP Address | |
| | | Technician | |

| Item | Verify | Date | Comments/Discrepancy |
|---|--------|------|----------------------|
| 24 VDC continuous power–fuse or circuit breaker | | | |
| Battery ground | | | |
| Chassis ground | | | |
| 24 VDC bus running–fuse or breaker | | | |
| Antenna | | | |
| Antenna cable | | | |
| TNC/PL-259 | | | |
| Modem power present | | | |
| Modem DB9 cable secure | | | |
| SAS N/C input | | | |
| Impact Sensor input | | | |
| Normal status negative output | | | |
| Check status negative output | | | |
| Camera cables 1 – 8 | | | |
| Camera cable BNCs 1 – 8 | | | |
| Camera 1 field of view | | | |
| Camera 2 field of view | | | |
| Camera 3 field of view | | | |
| Camera 4 field of view | | | |
| Camera 5 field of view | | | |
| Camera 6 field of view | | | |
| Camera 7 field of view | | | |
| Camera 8 field of view | | | |
| System enclosure secure | | | |
| LCD monitor 12-VDC–fuse or breaker | | | |
| Reverse 12-VDC to LCD monitor | | | |
| Side and Rear camera cables | | | |
| Side and Rear camera cable BNCs | | | |
| Side camera field of view | | | |
| Rear camera field of view | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Date: _____

Signature: _____

APPENDIX D. DVR CONFIGURATION WORKSHEET

Property Name: _____

1. Inputs 1 – 6

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Outputs 1 and 2

1. _____
2. _____

2. Camera(s) 1 – 8

Camera 1

Color – B&W – Disable

Camera Name <_____>

Capture Rate: Fast – Slow – Normal

Picture Quality: High – Medium – Low

Camera 1 Trigger Capture Rate: Fast – Slow – Normal

Camera 1 Trigger Picture Quality: High – Medium – Low

Camera 2

Color – B&W – Disable

Camera Name <_____>

Capture Rate: Fast – Slow – Normal

Picture Quality: High – Medium – Low

Camera 2 Trigger Capture Rate: Fast – Slow – Normal

Camera 2 Trigger Picture Quality: High – Medium – Low

Camera 3

Color – B&W – Disable

Camera Name <_____>

Capture Rate: Fast – Slow – Normal

Picture Quality: High – Medium – Low

Camera 3 Trigger Capture Rate: Fast – Slow – Normal

Camera 3 Trigger Picture Quality: High – Medium – Low

Camera 4

Color – B&W – Disable

Camera Name <_____>

Capture Rate: Fast – Slow – Normal

Picture Quality: High – Medium – Low

Camera 4 Trigger Capture Rate: Fast – Slow – Normal

Camera 4 Trigger Picture Quality: High – Medium – Low

Camera 5

Color – B&W – Disable

Camera Name <_____>

Capture Rate: Fast – Slow – Normal

Picture Quality: High – Medium – Low

Camera 5 Trigger Capture Rate: Fast – Slow – Normal

Camera 5 Trigger Picture Quality: High – Medium – Low

Camera 6

Color – B&W – Disable

Camera Name <_____>

Capture Rate: Fast – Slow – Normal

Picture Quality: High – Medium – Low

Camera 6 Trigger Capture Rate: Fast – Slow – Normal

Camera 6 Trigger Picture Quality: High – Medium – Low

Camera 7

Color – B&W – Disable

Camera Name <_____>

Capture Rate: Fast – Slow – Normal

Picture Quality: High – Medium – Low

Camera 7 Trigger Capture Rate: Fast – Slow – Normal

Camera 7 Trigger Picture Quality: High – Medium – Low

Camera 8

Color – B&W – Disable

Camera Name <_____>

Capture Rate: Fast – Slow – Normal

Picture Quality: High – Medium – Low

Camera 8 Trigger Capture Rate: Fast – Slow – Normal

Camera 8 Trigger Picture Quality: High – Medium – Low

3. Select Input to Set Up

None to 1 – 6

Input 1 Type: Alarm – Trigger – Disabled

Input 1 Name: _____

Input 1 Pre Alarm Time: 00 seconds to 10 minutes: _____

Input 1 Post Alarm Time: 00 seconds to 10 minutes: _____

Input 2 Type: Alarm – Trigger – Disabled

Input 2 Name: _____

Input 2 Pre Alarm Time: 00 seconds to 10 minutes: _____

Input 2 Post Alarm Time: 00 seconds to 10 minutes: _____

Input 3 Type: Alarm – Trigger – Disabled

Input 3 Name: _____

Input 3 Pre Alarm Time: 00 seconds to 10 minutes: _____

Input 3 Post Alarm Time: 00 seconds to 10 minutes: _____

Input 4 Type: Alarm – Trigger – Disabled

Input 4 Name: _____

Input 4 Pre Alarm Time: 00 seconds to 10 minutes: _____

Input 4 Post Alarm Time: 00 seconds to 10 minutes: _____

Input 5 Type: Alarm – Trigger – Disabled

Input 5 Name: _____

Input 5 Pre Alarm Time: 00 seconds to 10 minutes: _____

Input 5 Post Alarm Time: 00 seconds to 10 minutes: _____

Input 6 Type: Alarm – Trigger – Disabled

Input 6 Name: _____

Input 6 Pre Alarm Time: 00 seconds to 10 minutes: _____

Input 6 Post Alarm Time: 00 seconds to 10 minutes: _____

4. Group Cameras to Input: 1: 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8

2: 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8

3: 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8

4: 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8

5: 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8

6: 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8

5. Input Notify on Alarm: Yes – No

6. Set Up Transmission: Yes – No

If Yes:

Transmission Modem is: (1) Not Used, (2) Used W/O *DATA, (3) Used With *DATA

Central Station Number: ___ - ___ - ____

Second IP Address: _____

Central Station IP Address: ____ . ____ . ____ . ____

First IP Address: _____

Subnet Mask Number: 255.255.0.0

If No:

Put in subnet mask. Used with * data means ping; without data, no ping.

7. Set up System Variables?

System Capture Rate: 0.25 – .5 – .75 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8

DVR Shutdown Delay: 00 minutes to 50 minutes. _____

Audio Enable: Yes – No

Minimum Storage Time for Surveillance: 1 – day to 9 – days. _____

Minimum Storage Time for Alarms: 90 days to 10 days. _____

Auto Adjust for Daylight-Saving Time: Yes – No

8. Set Up Vehicle Variables?

Enter Vehicle ID: _____

Vehicle Password: _____

DVR IP Address: _____.____.____.____

9. Set Up DVR Date & Time? Yes – No**Notes:**

WARRANTY AND RETURN INFORMATION

GE Interlogix, Kalatel division warrants MobileView equipment for one year from the date of delivery and acceptance of property, or 90 days after the invoice date for equipment obtained by the vehicle OEM. This warranty covers any defects in materials and workmanship. Equipment failures that are due to improper installation, modification, abuse, or acts of nature will not be covered by this warranty. The repair department will evaluate all equipment returned for repair to determine warranty coverage. The Tech Support Manager will resolve any questions that may arise during evaluation to make a final determination.



Please read the manual thoroughly before attempting to correct any problems that may occur during normal use of the MobileView system. If attempts at isolating and resolving the problem are unsuccessful, call GE Interlogix, Kalatel division Technical Support at (800) 469-1676, 7:30 AM to 4:30 PM PST for further instruction. If the unit is deemed in need of replacement, remove the unit from the vehicle and use the following procedure to return the unit to GE Interlogix, Kalatel division for repair:

- Document the symptoms, diagnostic results, and any on-site maintenance or repair completed.
 - Record the serial number.
- Call GE Interlogix, Kalatel division's RMA department at (800) 469-1676 for a return materials authorization (RMA) number. Processing may be delayed on units that are received without an RMA number.

For all warranty repairs, GE Interlogix, Kalatel division will cover all costs, including parts, labor, and shipping. Repaired equipment will be returned via the same method of shipment in which it was received.

For all non-warranty repairs, the customer will be billed for parts, labor, and shipping. Labor will be billed in half-hour increments.

Before shipping the product(s) to GE Interlogix, Kalatel division, back up the data stored on the hard-disk drive(s) and any other storage device(s) in the product(s). Remove any media such as disks and CDs. GE Interlogix, Kalatel division does not accept liability for lost data or software.

Note: Customers requesting an estimate prior to repair will be notified by phone. If they cannot be reached, they will be notified by fax. If we are unable to reach the contact person for repair authorization after one phone attempt and two fax attempts, the equipment will be returned without being repaired. We will hold equipment no longer than two weeks.

ADVANCE REPLACEMENT POLICY

When an advance replacement is required, we will send the customer replacement equipment from our stock and receive the returned product in exchange. The received equipment will be evaluated and the repair department will determine whether it is a warranty replacement. If it is non-warranty, see our repair policy above for details. The following guidelines will be used for all advance replacements:

- Fewer than 45 days from purchase, GE Interlogix, Kalatel division will replace the product with new equipment.
- From 45 days to 1 year from purchase, GE Interlogix, Kalatel division will replace the product with refurbished equipment.
- From 1 year to 3 years from purchase, the product must be sent in for repair. Advance replacements will be sent for a fee of \$100.

If you have questions about this policy, please contact GE Interlogix, Kalatel division's RMA department at 800-469-1676.

Note: GE Interlogix, Kalatel division makes no express warranties beyond those stated in this warranty statement. GE Interlogix, Kalatel division disclaims all other warranties, express or implied, including without limitation, implied warranties of merchantability and fitness for a particular purpose. Some states do not allow limitations of implied warranties; this limitation may or may not apply to you.