10. Antenna Installation

10.1. Flat Cellular Antenna (4G)

This section describes installation procedures for the flat antenna which must be installed in an interior, dry location on top of the dashboard or the base of the windshield. The antenna has a 4G element and single cable.

Images

4G Antenna

Packing List

This part is included with the MDVR kit.

Preparation

The antenna's location determines the signal's connectivity, strength and affects the MDVR's operation.

- It should be mounted with a clear line of sight to satellites and cellular antennas behind windshield glass.

Installation Steps

1) Choose an appropriate mounting location on windshield or dashboard.
2) Clean the mounting surface with alcohol pad.
3) Remove the adhesive protective paper.
4) Place the antenna in the finished position carefully and press the adhesive tape firmly to the vehicle.

10.2. GPS Antenna

This section describes installation procedures for the GPS antenna which must be installed in an interior, dry location on top of the dashboard or the base of the windshield.

Images

GPS Antenna

Packing List

This part is included with the MDVR kit.

Preparation

The antenna's location determines the signal's connectivity, strength and affects the MDVR's operation.

- It should be mounted with a clear line of sight to satellites and cellular antennas behind windshield glass.

Installation Steps

5) Choose an appropriate mounting location on windshield or dashboard.
6) Clean the mounting surface with alcohol pad.
7) Remove the adhesive protective paper.

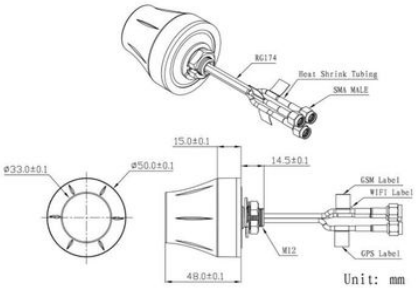
8) Place the antenna in the finished position carefully and press the adhesive tape firmly to the vehicle.

10.3. Round Antenna (if included)

This section describes installation procedures for the round antenna which must be installed in a drilled hole through the metal roof of the vehicle cab. The antenna requires mounting to a flat metal surface to best signal reception. The antenna has multiple elements and will contain at least 3G and GPS cables.

Packing List

This part is included with the MDVR kit.



Preparation

The antenna's location determines the signal's connectivity, strength and affects the MDVR's operation.

- It should be mounted on a metal roof panel.
- Leave at least 6" of "free air space" from other antennae.
- Ensure no wires or obstructions behind the panel where drilling.
- ***Before you start drilling***, make sure that you have enough antenna cable length for the distance between the antenna and MDVR connections.
- The mounting surface's material thickness (vehicle body or firewall) must be no thicker than 1/4" to fully thread and properly fasten the antennae.

Installation Steps

1) Choose an appropriate mounting location.
2) Measure and mark the antenna's location with the Center Punch.
3) Drill a hole with a 1/2" metal cutting bit through the mounting surface.

4) Use the de-burring tool to remove sharp edges around the hole.
5) Untie the cables, remove and save the lock washer. Pass cables through the 1/2" inch hole.
6) On the antenna's base bottom side, place a 1/8" bead of silicone sealant inside of the O-ring. This will ensure a watertight seal to the vehicle roof.
7) Place the antenna in the finished position carefully. Clean up any excess silicone sealant.
8) Replace the lock washer and install the split nut onto the antenna's threaded shaft. Finger tighten this nut.
9) Using an 18mm split socket (O2 Socket), tighten the split nut until the antenna is fully seated to its mounting surface.
10) Route antenna cables to MDVR, taping or securing the cable every 12-18”.

Mounting Examples

This section intentionally blank

11. Event Switch and Power Takeoff Installation

This section describes the installation procedures for a driver's side dashboard-mount Event Switch assembly and for connecting an MDVR sensor input to the vehicle's power takeoff activation circuits. The Event Switch can be used by the driver to place a mark in the recording for later access when a significant roadway event has occurred which can't be detected by system sensors. The Power Takeoff (PTO) connection will automatically mark the recording everytime the system is activated for loading and unloading events.

Event Switch Assembly

Installation Steps

1) Choose an appropriate mounting location on the driver's side dashboard which has room behind for the switch. Remove any trim panels to gain access.
2) Drill a hole just large enough to accommodate the Event Switch.
3) Install the Event Switch through the hole and secure with the included nut.
4) Route the wires to the MDVR and connect per the schematic.
5) Determine if the vehicle has a PTO switch which switches +12V in the dashboard and connect the IO_SENSOR 2 wire to that switch. If the PTO switch is digital and controls an ECU elsewhere, you will need to locate the output of the switched relay either under the dash or behind the cab to access the +12V whenever the PTO is activated.

12. Monitor Installation

This section describes the installation procedures for the 2-channel LCD monitor. It is connected to the MDVR output, another camera such as a backup camera and a trigger discrete (e.g. reverse signal) to switch the viewed image between the 2 channels.

Packing List

- LCD Monitor (7”)
- Mounting bracket
- 4 knob screws with washers
- Trigger cable (Molex connector to 4 cut leads)
- Remote control
- User manual

Preparation

- Remove contents from the packaging.
- Choose a mounting location within the cab. Consult customer for their preference.
- Choose the mounting holes. The bracket has mounting slot options for the 4 mounting screws. This allows your choice of fixed or adjustable mounting possibilities.

Installation Steps

Mounting Bracket

1) Choose an appropriate mounting location. Consider ease of installation, access for maintenance and inspect area behind panels and check for obstructions such as wire harnesses, window regulators, etc.
2) Before drilling holes, recheck area behind panels and check for obstructions such as wire harnesses, window regulators, etc.
3) Drill 1/8" holes into the mounting surface.

4) Insert the 1/2" self-tapping screws through the bracket slots and into the drilled holes.
5) Tighten the screws to secure the mounting bracket.

Monitor

1) Place the monitor within the mounting bracket and capture the position with the knob screws and washers. Hand tighten.
2) Adjust viewing tilt to desired position by loosening as needed.
3) Tighten knobs with pliers.
4) Connect the trigger cable to the monitor.

This section intentionally blank

13. MDVR Installation and Final Checkout

This section describes the installation procedures for the Mobile Digital Video Recorder (MDVR).

Packing List

- MDVR
- Hardware packet with 2 keys, 1 Allen bolt and wrench
- Security cover
- 6-pin power cable
- 24-pin I/O connector
- Remote control with 2 AAA batteries

MDVR Mounting Examples

Mounted under Driver's Seat **Mounted under Rear Passenger Seat**

Preparation

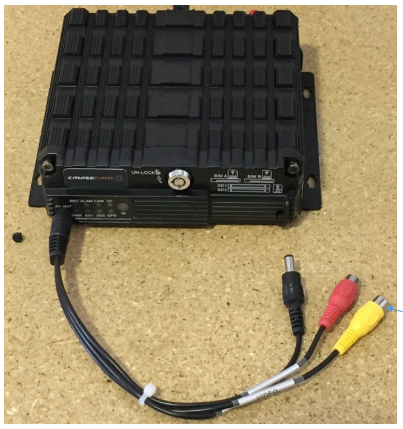
- Remove contents from the packaging.
- Choose a stable, horizontal mounting location within the cab. Under driver's or rear passenger seat is generally recommended with the front panel easily accessible.
- MDVR must be fixed to floor board or secure panel for the accuracy of the MDVR's accelerometer output.
- Must have adequate space behind the MDVR for cabling to avoid connection stresses and failures.
- Must have adequate space to accommodate security cover during final installation.
- ***Proper MDVR installation is critical to the system operation.***

Installation Steps

Connections

1. Connect and tighten antennas.
2. Connect 24-pin IO connector…press firmly until snap is heard.
3. Connect cameras.

4. ***Before connecting the power cable, make sure cameras and antenna are already connected. Damage to the MDVR could occur if power is applied without the antennas connected.***
5. Connect either the supplied monitor to the Monitor connector on the 24-pin IO connector or the test monitor with an RCA video jack via the adapter cable plugged into the monitor jack on the front of the MDVR.



Video Adapter Cable for MDVR (Installer-supplied monitor)

Included Monitor

6. **Connect 6-pin power connector last**.
7. Ensure MDVR front panel cover is closed and locked (use supplied security key).

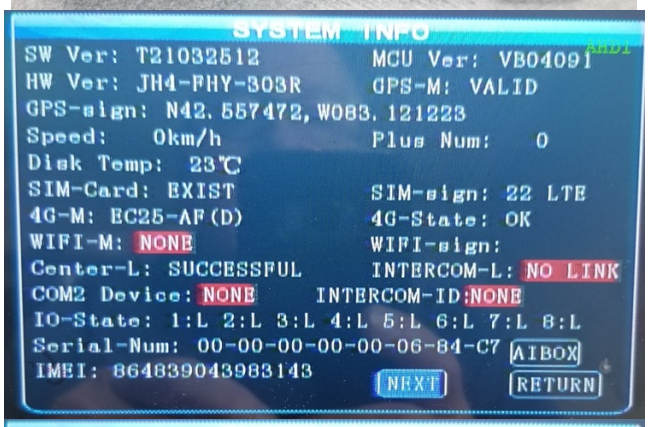
Note: It is recommended that the remote and MDVR security key be ziptied together and provided to the customer for safe-keeping following installation and setup. Do not leave them in the truck.

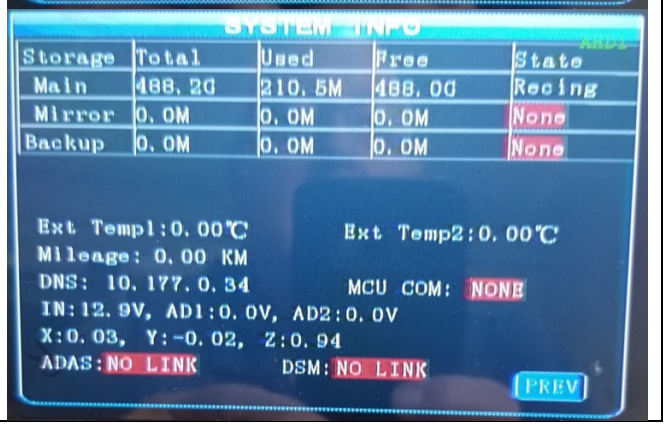
Power-up MDVR, Aim Cameras and System Checkout

1. Ensure +12V power is supplied to the MDVR (via the red wire). Turn the ignition key on and verify +12V at the yellow MDVR wire.
2. Monitor the MDVR LEDs for a blue light followed by various green lights and for the monitor to display the MDVR boot-up sequence.
3. Once boot-up is complete, a 4 camera view should be displayed on the monitor. If using a MVCS-supplied monitor and it is black, verify the monitor is on the right channel by pressing the channel button (left of power switch).
4. Aim all cameras using the monitor and the aiming examples in this manual. Tighten all camera screws firmly once camera is aligned.
5. Using the supplied MDVR remote control, perform the following:

System Checkout

1) Press INFO on remote to bring up System Information page 1 (point remote at front of MDVR).
2) Wait 1-2 minutes for the following indications:
   a) SIM-Card: EXIST
   b) SIM Signal: 10 (or greater)
   c) Dial Status: OK
   d) Center Link: SUCCESSFUL
   e) GPS-M: VALID
3) Exercise connections to all IO_SENSOR inputs which were used and observe proper response:
   a) IO: 1: L=<4.5V; H=>4.5V
   b) IO: 2: L=<4.5V; H=>4.5V
   c) IO: 3: L=<4.5V; H=>4.5V
   d) IO: 4: L=<4.5V; H=>4.5V
   e) IO: 5: L=<4.5V; H=>4.5V
   f) IO: 6: L=<4.5V; H=>4.5V
4) Press NEXT to go to page 2 and verify:
   a) Storage/Main shows a total of about 900 GB and State is Rec'ing
5) Press RETURN to exit page.





MVCS Confirmation and Sign-off

1. Call MVCS System Monitoring Staff number (page 1).
2. Identify yourself as installer and the customer you are serving and that you need a Confirmation and Sign-off on installation.
3. Wait for MVCS person to verify camera and GPS functionality and camera aiming. Exercise any discrete inputs per MVCS person request. For the last step (MDVR must be in final location in a level truck), when the MVCS person asks, reset the G-sensors using the following procedure: