



DVM-500Ultra All Weather Video System Installation Instructions



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**STANDARD LIMITED WARRANTY
MODEL DVM-500ULTRA
REAR VIEW MIRROR IN-VEHICLE DIGITAL VIDEO SYSTEM**

We warrant that our In-Car Digital Video System, Model DVM-500Ultra, will be free from defects in workmanship and material for a period of 24 months from the date of purchase by the original purchaser. If any defect is discovered through normal and proper use of the unit during this period, the defect will be repaired or the unit will be replaced at our factory or at one of our authorized service centers at no cost to the purchaser. The purchaser must return the defective unit to the factory or one of our authorized service centers, freight prepaid. We will pay for shipping charges for the return of the unit.

This warranty applies only to defects in a unit's internal electronic components and circuitry, and is void as to units that have been opened without prior authorization, have experienced unauthorized repairs, or have had unauthorized modifications. This warranty does not cover the following:

- Normal wear and tear on the unit such as batteries, frayed cables or wires, broken connectors, or scratched or broken cases.
- Damage caused by operator abuse or neglect.
- Damage caused by incorrect use of the unit, carelessness, unauthorized alterations to the unit, improper storage of the unit or unauthorized service, installation or repairs made to the unit.
- Damage caused by fire, flood, lightning, vandalism, collision, Acts of God, or other events beyond the reasonable control of Digital Ally, Inc. or the purchaser.
- Damage to external parts of the unit such as buttons, microphones, wires, and cables, etc.
- Damage from use of the unit in hostile operating environments.

We reserve the right to charge for repairs to a unit during the warranty period made necessary because of any of the foregoing causes at our standard rates for repair of units not under warranty.

The purchaser assumes all risk of use from its purchase and use of the unit. Harmful personal contact with a unit might occur in the event of violent maneuvers, collisions, or similar circumstances, even if the unit was properly installed and used. We are not responsible for, and we specifically disclaim any liability for injury caused by a unit in such circumstances.

THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THIS STATEMENT. ALL IMPLIED WARRANTIES ARE DISCLAIMED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, FITNESS FOR A PARTICULAR PURPOSE, AND WARRANTIES IMPLIED FROM A COURSE OF DEALING, COURSE OF PERFORMANCE OR USAGE OF TRADE. THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY FOR A WARRANTY CLAIM WILL BE THE REPAIR OR REPLACEMENT OF A UNIT.

BEFORE YOU BEGIN INSTALLATION

Tools Needed

- #2 Phillips head screwdriver
- 1/8" (4mm) flat blade screwdriver
- Basic socket set
- Multimeter
- Power Drill
- Velcro or double sided tape
- Tie Wraps

DVM-500ULTRA PARTS LIST

Part Number	Image	Description
006-08100-00		DV-500 Ultra Main Module
006-08104-00		External Monitor Module with Sunshield
006-08105-00		Bullet Camera
002-05027-00		Saddlebag Mount For Main Module
002-05027-01		Saddlebag Mount For Main Module
002-05028-00		Faring Mount For Bullet Camera
002-05029-00		Rail Mount For Bullet Camera

002-05026-01		Handlebar Mount For External Monitor Module
006-0076-01		Interface (IF) Box
004-0903-00		Voice Vault Wireless Mic (RMT) (Includes Belt Clip)
004-0506-00		Desktop Charging Cradle with AC Power Adapter
004-0507-00		In Car Charging Cradle with DC Auto Adapter
008-01260-00		Main Module to IF Box Cable
008-01263-00		Console Cable to Main Module
008-01264-00		Camera Cable to Main Module
008-01265-00		Power-Trigger to IF Box Cable
240-00030-00		Wiring Grommet
258-00055-00		Additional Mounting Plate
280-0014		(2) 7.5 Amp Fuses

CAUTIONS & NOTES

Please read and follow the instructions and precautions in this installation guide when installing the DVM-500Ultra system.

- For assistance, a qualified installation technician or mechanic should be consulted.
- Do not route wiring and cabling over sharp metal edges where they may become damaged or cut.
- Do not run wires or cables in areas where they become damaged by heat from the engine or the exhaust system.
- When installing the cables or making wire connections, it is recommended you allow for service loops and leave a little 'slack' in the cable connections to allow for service loops and to allow for movement of the mirror so the connections do not get pulled or accidentally disconnected.
- Avoid running cables parallel to other wiring and/or antenna coax of other systems that may be installed in the motorcycle. Doing so may cause Radio Frequency (RF) interference in the video or audio recordings of the DVM system.
- **Use tie wraps every 6 inches to firmly secure system cabling to the vehicle chassis and to minimize vibration.**
- **If installing the optional Wireless Transfer Module (WTM), consult the *WTM-555 installation instructions*.**

DVM-500ULTRA Interface Box Backup Battery

This system is equipped with a Backup Battery that is located in the *Interface Box* (pictured on page 9 of this manual). In case of vehicle power failure, the Backup Battery will maintain power to your DVM-500Ultra system for 30-90 minutes. If the Backup Battery does not have a high enough charge at the time of installation, the DVM-500ULTRA system may not turn on correctly the first time. It may be necessary to charge the Backup Battery.

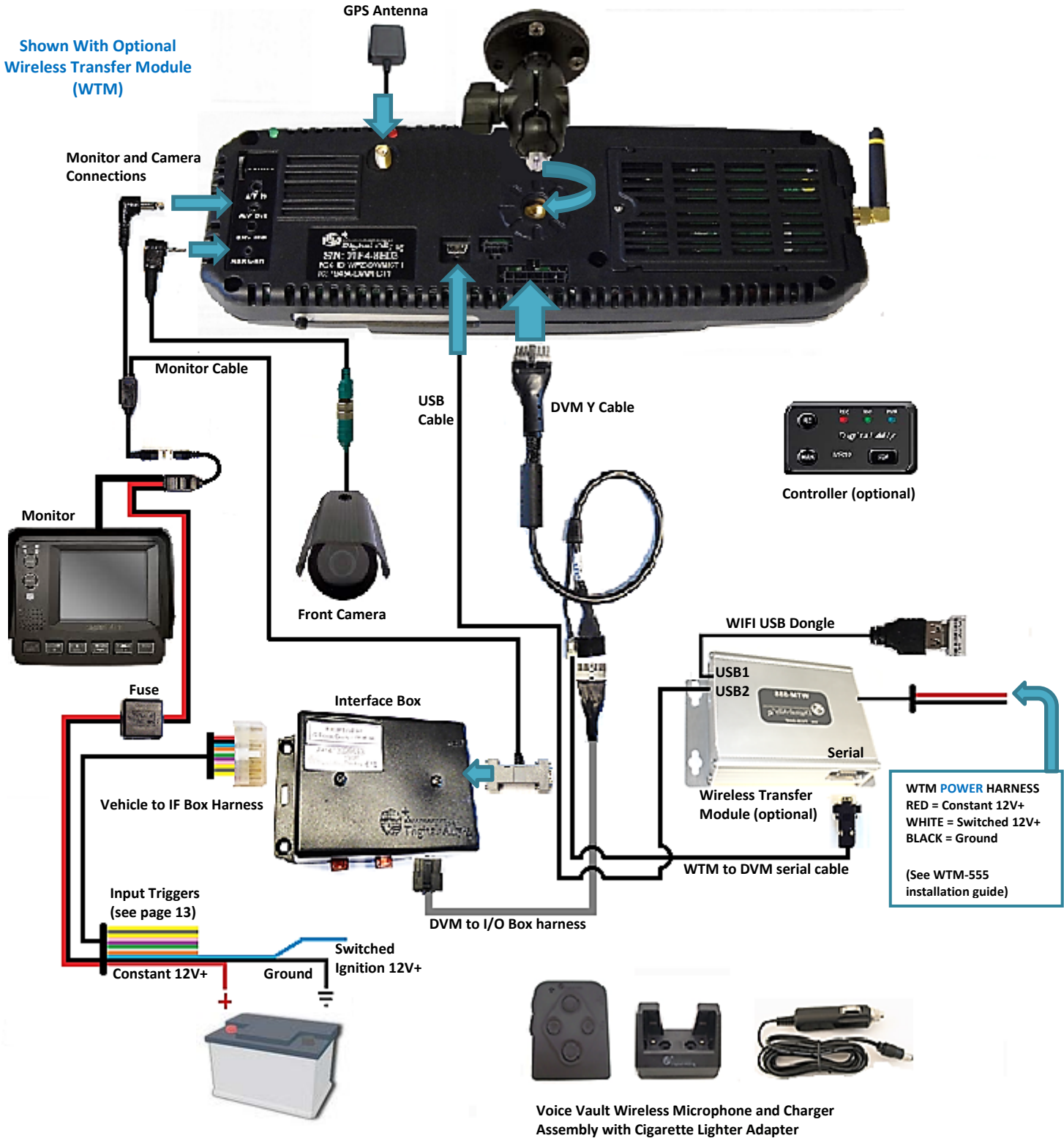
****To charge the Backup Battery, install your DVM-500ULTRA system, but do not turn it on. Start the vehicle and allow the vehicle to idle for 5-10 minutes.**

Before powering on your new DVM-500ULTRA

Your DVM-500ULTRA system comes equipped with a Compact Flash card that the system records all of your video files to. In order to ensure that you receive the latest features and benefits your system has to offer, please follow the following steps before turning on your system for the first time:

- **Logon to www.digitalallyinc.com/tech-support.php and register for an account to be an Authorized User.** By registering, you will be able to download all of the latest software and firmware updates and you will also be notified of all future updates.
- **Download the latest firmware, copy the file to your Compact Flash Card that was included with your system, and follow the Firmware Update instructions in your DVM-500ULTRA User's Guide.**
- For further assistance, please contact our Technical Support staff at: Phone: Toll-Free 1-800-440-4947 or 1-913-814-7774 Email: support@digitalallyinc.com.

SYSTEM DIAGRAM



SYSTEM INSTALLATION

STEP 1: Remove Factory Body Trim

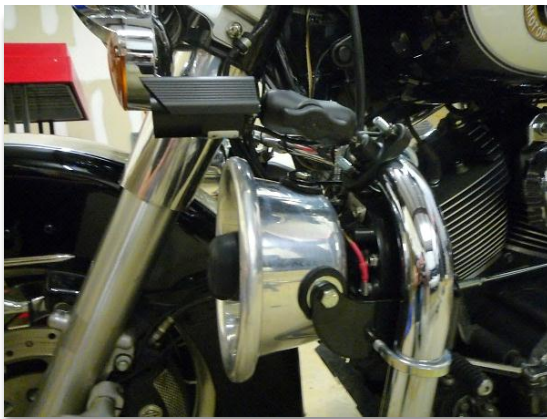
- **Determine a suitable mounting location for the DVM-500 Ultra.** For vehicles such as motorcycles, we recommend installing the Main Module and I/O box in the saddlebag or radio/trunk box as these modules are not waterproof. We offer several different mounts and ideas for mounting on different types of motorcycles and vehicles. The lid of the saddlebag is an ideal location to allow easy access. Next, remove the seat so to gain access to the vehicle battery.

Mount inside the trunk or saddlebag



STEP 2: Mount the Front Camera

- The bullet camera can be installed on a motorcycle crash bar, in the fairing, or other locations, as desired. Care should be taken to aim the camera to facilitate record the best picture, i.e. if mounted on the crash bar; you may need to aim the camera "up". Also, if attached to a motorcycle, parking the vehicle may change the view. Make sure to test the camera aim to find the best position that suits your application.



- Connect the two green connectors from the camera harness and route the remaining cable towards your designated DVM location. For Harley Davidson, the camera and monitor cabling can be run over the fuel tank, underneath the tank bezel. Make sure you allow enough clearance for left & right turns. Secure all cabling neatly with tie wraps.

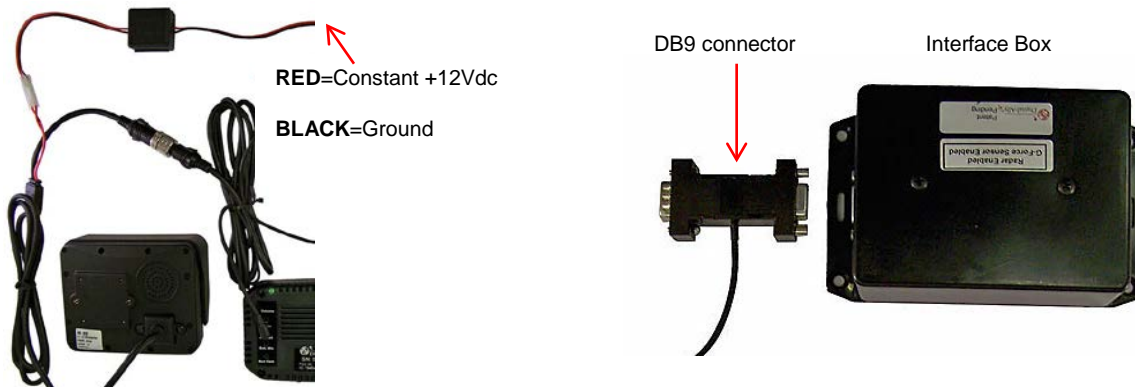


STEP 3: Install the Waterproof Controller or Monitor.

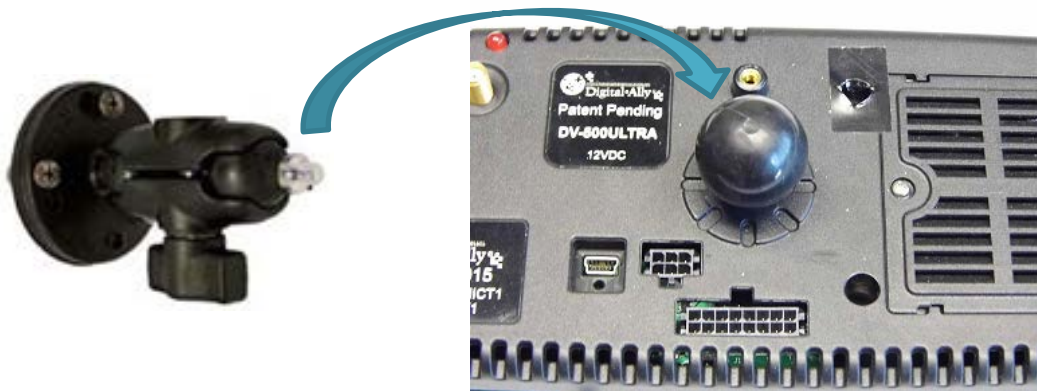
- The waterproof controller can be mounted in a number of locations, such as on the handlebars of a motorcycle. The mount enclosed is for mounting on the handlebars. Attach the mount to the controller. Examples are illustrated below.



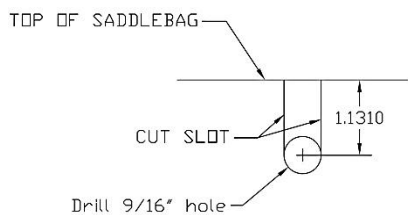
- Route the console cable to the Main Module (DVM) as well as to the cable attached to the waterproof controller as shown below to the left. This cable will also include the red and black wires to connect to a constant 12Vdc power source. As it is not necessary to connect this cable directly to the battery compartment, we recommend using a more accessible power source. A good location for the Y section of cabling is under the seat out of harm's way. Next, route the DB9 connector to the interface box location. For Harley Davidson, the camera and monitor cabling can be run over the fuel tank, underneath the tank bezel. Make sure you allow enough cable clearance for left & right turns. Secure all cabling neatly with tie wraps to minimize vibration.



STEP 4: Attach the DVM-500Ultra Mount



- **Route all cabling safely along the frame of the vehicle and to the DVM location. The included wiring grommet can be used for routing system cables inside the saddlebag. Refer to the illustrations below.**

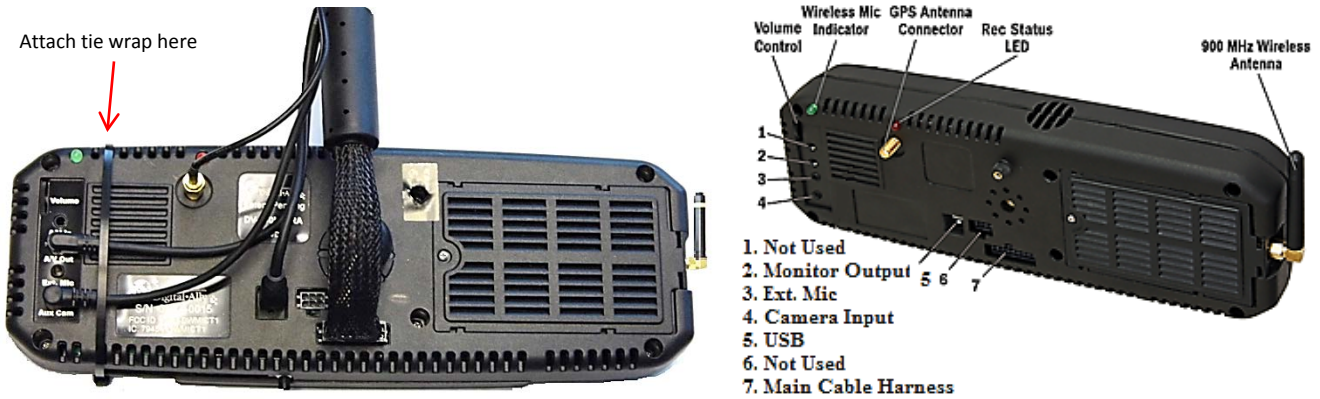


1. Drill 9/16" hole 1.131" down from top of saddlebag.
2. Cut up from both sides of hole to top of saddlebag.



STEP 5: DVM Connections

- Attach the following cables to the back of the DVM: **GPS, MAIN CABLE HARNESS, A/V Out, and AUX CAM (front camera)**. Also, connect the **USB** if the wireless option was purchased. To help minimize vibration to the DVM connections, attach a tie wrap as shown below.



STEP 6: Mount the DVM-500Ultra and Interface Box

- Attach your DVM to the vehicle and neatly secure all cabling using tie wraps. Examples are illustrated below.
- The interface box is usually mounted near the DVM, away from other police equipment. It is recommended that this be mounted in a location where it can be accessed later if necessary. It is required that the I/O box is not placed where there is a possibility of moisture.



To minimize the effects of RFI within the vehicle, mount the interface box away from all other police equipment.



STEP 7: GPS Connection

- The GPS antenna should be placed on the outside of the vehicle for the best possible reception. If desired, the antenna may be mounted internally such as the roof of the trunk, as long as there are no metal objects or other sources of RFI near the receiver. Use high quality Velcro or double-sided tape if mounting internally.



GPS antenna

STEP 8: Power, Ignition, Ground, and Trigger Connections

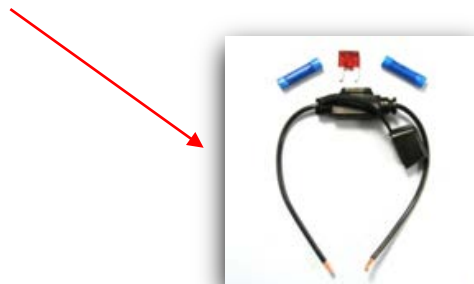
- Connect the *power and sensor input wiring harness* (11-wire, 14-pin, multicolored) to the interface box and follow the included wiring chart on page 13 to connect the desired optional inputs and record triggers. Insert the two 7.5 AMP fuses into the slots located on the side of the interface box, as shown in the picture below.
- Secure the monitor DB9 serial cable to the I/O box using a small flathead screwdriver.



Note

It is recommended that these connections are made directly to the battery wiring harness for best results. These wires should be used ONLY for the DVM system and not be tapped into for installation of any other equipment in the vehicle. Doing so, could result in possible radio frequency interference from the other equipment.

- *It is highly recommended to install the provided 7.5 Amp fuse and holder on the Red +12V power source wire. Doing so will provide the proper protection for the wiring between the source and the device.*



Wiring Connections Chart

Input Signal	Color	AWG	Description	Notes
+12V Power	Red	16	+12VDC Un-switched Power	REQUIRED. Digital Ally recommends connecting directly to the engine compartment battery. Do NOT connect to a charge guard or battery saver system.
Ground	Black	16	Ground	REQUIRED. Digital Ally recommends connecting directly to the engine compartment battery
Ignition	Blue	18	+12VDC Switched	REQUIRED. +12V power only when ignition is in the ACC or On position. When ignition is turned off, the unit Can be set to do a controlled shutdown automatically based on a user selectable time setting. This connection also necessary to charge the I/O box internal backup battery.
Emergency Lights	Orange	18	Emergency Light interface. +12V when lights are activated	Connect to Light Bar Controller
Siren	Yellow	18	Connect directly to one side of siren speaker. Or, connect one yellow wire to siren controller if it outputs +12VDC when siren is ON.	
Siren	Yellow	18	Connect directly to other side of siren speaker. Or, connect other yellow wire to ground if the siren controller outputs +12VDC when siren is ON.	
Brake	Green	18	Brake interface. +12V signal when brakes are activated	Connect to brake pedal switch or 3rd brake light
Speed	Grey	18	Vehicle speed sensor for speedometer interface. (VSS)	Speed sensor that outputs X number of pulses per mile.
Left Turn Signal	Violet	18	Left turn signal input. +12V signal when turn signal is activated	
Right Turn Signal	Pink	18	Right turn signal input. +12V signal when turn signal is activated	
Reverse	White	18	Reverse input. Signal grounded when vehicle goes into reverse	

NOTE *The interface box includes a battery backup that provides between 30-90 minutes of operation in the case of unexpected power loss, and is kept charged while the vehicle is running. If the Backup Battery does not have a high enough charge at the time of installation, the DVM may not power up correctly the first time. It may be necessary to charge the backup battery in the IF Box prior to first use. To charge the Backup Battery, start the vehicle and allow it to run for at least 5 to 10 minutes following installation.*

NOTE *The ignition input (Blue wire) MUST be connected to a point where +12V is present only when the ignition is in the ON position.*

STEP 9: Wireless Microphone Charging Cradle

Mount the wireless MIC charging cradle in a desirable location, plug the power cable into the charging cradle, then connect the cigar plug to a constantly powered +12V receptacle. Mounting hardware is included, and there are 2 threaded mounting holes in the bottom of the charging cradle allowing you several mounting options.



A 110 Volt AC Wall charger is also provided for charging outside the vehicle.

YOUR DVM INSTALLATION IS COMPLETE. TURN ON THE VEHICLE'S IGNITION, INSERT THE CF CARD INTO THE DVM-500ULTRA, AND PRESS THE "MARK" BUTTON ON THE DVM TO POWER ON THE SYSTEM. IF INSTALLING THE OPTIONAL WIRELESS TRANSFER MODULE, CONSULT THE WTM-555 INSTALLATION GUIDE.

IMPORTANT NOTES WHEN INSTALLING AND USING YOUR DVM-500ULTRA

- The DVM's CF memory card comes with 2 default login settings already configured, and they are as follows:
User1 – Password = 222222
Admin – Password = 111111
- A CF Memory Card Must Be Installed. Your DVM has been shipped with a 4GB CF memory card. A memory card must be fully inserted before powering up the unit or a message "Error – CF Missing or Bad" will appear on the screen and the unit will fail to start up. Although your CF card is ready to use out of the box, it should be activated through your back office software. Consult the *DVM-500Ultra User's Guide*, and the *VideoManagerII™* or *VuVault™ User's guides* for information on activating your CF card.

DO NOT FORCE MEMORY CARDS INTO THE SLOT

- The card only goes in one way, with the back side of the card towards the front of the mirror and the colorful label side facing the back of the mirror. The memory card should slide in very easily and you should only encounter resistance as the last 1/8" snaps into place. If the card is difficult to insert, pull it back out and make sure it is facing the right direction and align it carefully with the slot as you reinsert it.



Important: Do Not Insert or Remove the Compact Flash Card while the unit is Powered On.

Important: Before Jump Starting the Vehicle, all power should be removed from the system. Remove the (2) 7.5 Amp fuses from the side of the I/O Box BEFORE jump-starting the vehicle. This will prevent potentially damaging voltage spikes from entering the DVM-500Ultra System. Reinsert the fuses after jump-starting the vehicle.

POST INSTALLATION CHECKLIST

DVM serial number	
Camera serial number	
Vehicle Make & Model	
Vehicle license plate number	
VIN number	
Date of Installation	
Installer Signature	

HOW TO RESET THE DVM-500ULTRA SYSTEM

1. Remove power from the Interface (I/O) Box for 30-60 seconds by removing the (2) 7.5 Amp fuses from the side of the small, black I/O Box located in the vehicle (location will vary). The I/O Box, DVM, and the Camera(s) will reset automatically.
2. Re-insert both 7.5 Amp fuses into the I/O Box and then power up the system by using the MARK button, or by turning the vehicle's ignition switch to the ON position (if the DVM was ordered with the Ignition Power Up option).

TROUBLESHOOTING

Problem	Resolution
Unit "locks up"; will not respond to any button input.	Reset the system (page 16). If the problem persists, then please contact Product Support.
"No I/O Box detected" displayed onscreen during system boot up.	Reset the system (page 16). Disconnect/reconnect the flat, 10-wire connector between the black and grey I/O Box cables. If the problem persists, then please contact Product Support.
System will not power up.	Inspect the (2) 7.5 Amp fuses in the I/O Box to see if either one is blown. Replace bad fuse(s). If the fuses are good, then call Product Support.
Unit powers up, but the screen is blank after the logo screen.	Power down the system. Power up the system and then briefly press the MENU/6 button when the "Digital Ally" logo screen appears. This will force the DVM to use the built-in LCD.
Unit powers up, but will not display the login screen, and will not accept input from any button. May be accompanied by a general color tint to the screen with no visible text onscreen.	Reset the system (page 16). If the condition is still present, then refresh the system software. Please contact Product Support if this does not resolve the problem.

<p>“Initializing CF Card” or “No Valid User’s Found” is displayed onscreen during system boot up.</p>	<p>Unlock the Door and Power down the DVM. Remove the CF card from the DVM and then reactivate it in VideoManagerII or VuVault. Reinstall the newly-activated CF card back into the DVM.</p>
<p>Display Text can be seen, but no video is displayed after switching to the Main Camera.</p>	<p>Disconnect and reconnect camera cable. Make a note if wiggling a cable causes the DVM to display video intermittently. If the problem persists, then please contact Product Support.</p>
<p>Audio breaking up during recording while using the RMT.</p>	<ol style="list-style-type: none"> 1. Check the battery level by inserting RMT into the charger. If 25% or less, then charge RMT to 100%. 2. Synch a known-good RMT to the DVM and record a test video. Check audio quality during playback. 3. Synch suspect RMT to a known-good system and record a test video. Check audio quality during playback. 4. Contact Product Support for further assistance.
<p>Electronic Lock Error</p>	<p>Power down the DVM. Power up the DVM and login as an administrator-level user. The door should unlock.</p>
<p>“CF Card Missing or Bad”</p>	<p>Call Product Support with onscreen information to receive an override code. The door will unlock after the code is entered. Upload the videos from the CF card into VideoManager and then Erase/Format the card. If this fails, then the card may need to be replaced. Contact Product Support for more assistance.</p>

PRODUCT REPAIR

The Digital Video Mirror should be returned to the manufacturer for service. The warranty may be voided if the device is opened by any unauthorized individual. Please contact Digital Ally to obtain an authorized Return Materials Authorization (RMA). It is helpful and will expedite the process if you have your unit’s serial number available at the time of your call.

Important: All In-Warranty and Out-of-Warranty service must be performed by Digital Ally, Inc. There are no user serviceable parts inside of the DVM, Camera(s), I/O Box, or Remote charging equipment. Remote batteries are user serviceable and can be purchased directly through Digital Ally.



Ph: 800-440-4947 or 913-814-7774

Fax: 913-814-7775

Email: support@digitalallyinc.com

Website: www.digitalallyinc.com

FCC Data



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

The CE Mark is a European marking of conformity indicating that a product complies with the essential requirements of the applicable European laws or Directives with respect to safety, health, environment, and consumer protection.