



# VAM-HD Installation Guide

NOTE: This Product is intended for installation by a professional Installer only! Any attempt to install this product by any person other than A trained professional may result in severe damage to the electrical system and  
To vehicles components.

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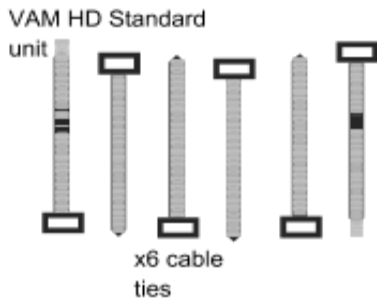
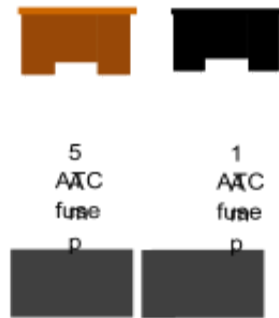
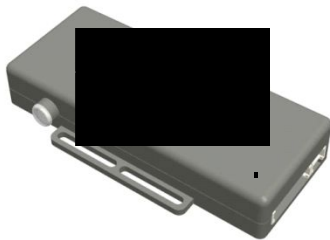


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1 VAM-HD

1.1 What is Included



VAM HD system cable



x1 star washer

No. 8 x 1 1/2 inch self-tapping screw

5 A/C fuse  
1 A/C fuse

Velcro Self-adhesive backing



## 1.2 Getting Started

Before starting the installation of the VAM-HD, check to make sure all the above parts are in the box and that the 2 fuses are secure in the fuse holders.

## 1.3 Installation Points

The ideal location to mount the VAM is underneath the dashboard in the cabin of the vehicle.

The product should not be installed in the engine bay of the vehicle.

**The VAM should always be installed with the label facing up so that the internal antennas have a good clear view of the sky.**

If the module is to be installed under the vehicle's dashboard, mount it as high as possible to enhance its line of sight to the sky.

Do not place directly underneath a metal panel as this will affect the GPS and GSM performance. Plastic and glass do not block the signal unless they are metal coated such as Solar Glass windshields.

**Do not install the VAM where it will be subjected to direct sunlight – such as directly underneath the windshield.**

Use the Velcro strip and/or the cable ties to mount the VAM securely onto the vehicle.

The VAM module has internal antennas for GPS satellite reception and GSM communication. These should be sufficient to enable the VAM to obtain a GPS fix, providing the mounting position guidelines have been followed as described.

## Wiring - VAM Standard Fit

Three connections are needed to support the power requirements of the VAM-HD, and a digital multi-meter will be needed to test them. Turn your meter on to DC voltage and Ground the black lead of the meter, you can now use the red lead of the meter to test for your ignition and 12 volt sources.

Red – 12 Volt constant

Black – Chassis Ground

White - Switched ignition

The VAM requires a permanent connection to the vehicle 12volt supply. The installer must locate a +12VDC or +24VDC supply that is not affected by the ignition status. The simplest location to find such a supply is in the kick panel fuse box or within the ignition harness

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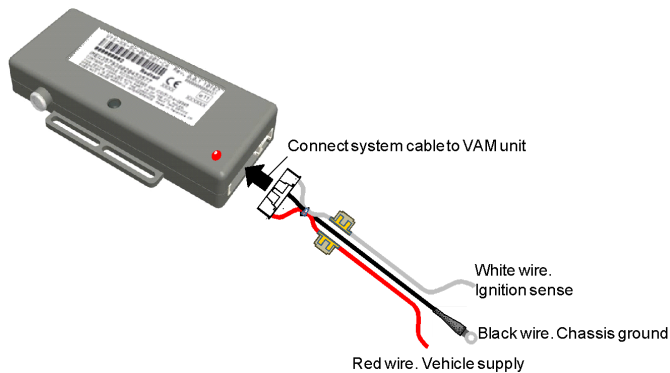
attached to the vehicle key cylinder. (Refer to your specific vehicle's wiring diagram). Connect the red wire of the VAM-HD to the constant 12volt supply of the vehicle.

Connect the black wire to a solid chassis ground that is clean and free of paint or dirt. As a last resort option, use the star washer and the self-tapping screw for this purpose

Connect the white wire on the VAM-HD harness to an ignition sense. The ignition sense wire can be identified by grounding the black lead of the meter and probing with the red lead of the meter.

This wire will show no voltage on the meter with the key off and when the ignition is switched on, the ignition sense wire on the vehicle will go to 12VDC or higher.

When the ignition is turned back off, this voltage will drop back to 0V. Connect the White wire on the VAM-HD harness to this. Once all connections have been made, plug the VAM unit into the wiring harness as shown.



Once installed, use the remaining cable ties to tidy the wires on the system harness.

## 1.4 Installation Testing

Park the vehicle in a fairly open area outdoors to receive GPS signals, with engine off. The VAM unit is set to automatically search for a GPS fix as soon as power is applied. Once a fix has been found, the unit will send a "First Fix Message" via the GSM network to the Back Office provider.

Next turn the engine on and observe the LED flash sequence as described in the table in section 6.

Ensure that the GPS is able to achieve a 3D fix by observing the 3 short green flashes. A 3D fix will take several minutes to achieve.

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Ensure that the VAM connects to the GSM network. This can take several minutes AFTER the 3D GPS fix is obtained.

Ensure the VAM thinks the engine is running by observing the rapid flashes. Two should be seen in green. This should take several seconds after the ignition is switched on.

If you only get one rapid flash the device thinks that the vehicle is not running. CHECK YOUR IGNITION CONNECTION!








Turn the engine off.

## 1.5 Back Office Connection

Ensure the unit has registered with the Back Office over the GSM network. DO NOT leave the vehicle until you have checked that the unit has checked in by displaying its current location on the Back Office.

You can do this by contacting Redtail at 866-711-4880

## 2 DIAGNOSTIC LED FLASH SEQUENCE

LED Flash	Colour	Type	Description
<b>GPS</b>			
	Red	1 short flash	No GPS
	Orange	2 short flashes	2D GPS fix
	Green	3 short flashes	3D GPS fix
<b>GSM/GPRS Network Connection</b>			
	Orange	1 medium flash	GSM network available (SMS only)
	Green	2 medium flashes	Data link available (GPRS)
	Orange	3 medium flashes	SMS(s) being transmitted or received since last sequence cycle
	Red	4 medium flashes	No network coverage (No GSM, GPRS)






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<b>Ignition Status</b>			
	Orange	1 rapid flash	Ignition OFF
	Green	2 rapid flashes	Ignition ON
<b>Bluetooth</b>			
	Orange	1 long flash	Searching for a Bluetooth connection
	Green	2 long flashes	Bluetooth connected
	Red	1 long flash	Bluetooth not connected/off

The VAM diagnostic LED sequence indicates the GPS and communications network status, plus engine running detection. These three sequences are repeated in a loop with a one second gap between each sequence.

A full engineering diagnostic cycle lasts between 4 seconds with no GPS or GSM and no engine running to 10½ seconds with 3D GPS, GSM SMS active and the engine running.

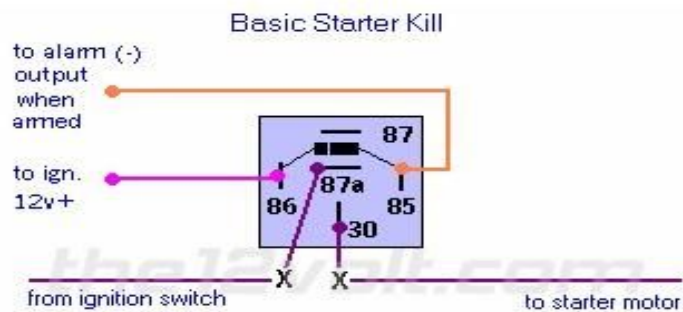
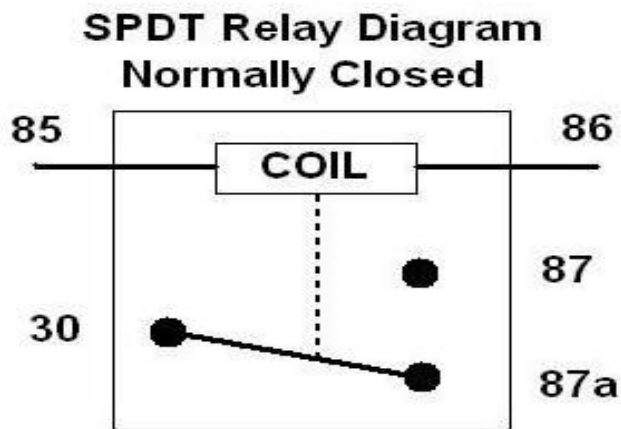
To save power, the LED will be switched off when the VAM is in Sleep Mode.

## **Starter Disable**

Any system design surrounding starter disable must mitigate risks whilst maintaining the ability of the assert manager to control the vehicle as required. Such a system must go beyond the purely technical issues and examine the operational procedures which support the technology. The Redtail system design allows a Starter Disable function to be used safely.

The Starter disable cannot be activated until vehicle has been parked with the engine off for ten (10) minutes.

After a fixed maximum amount of time without communications the starter disable function must itself be disabled. As this is not a "safety" issue the maximum time can be freely configured by Redtail.



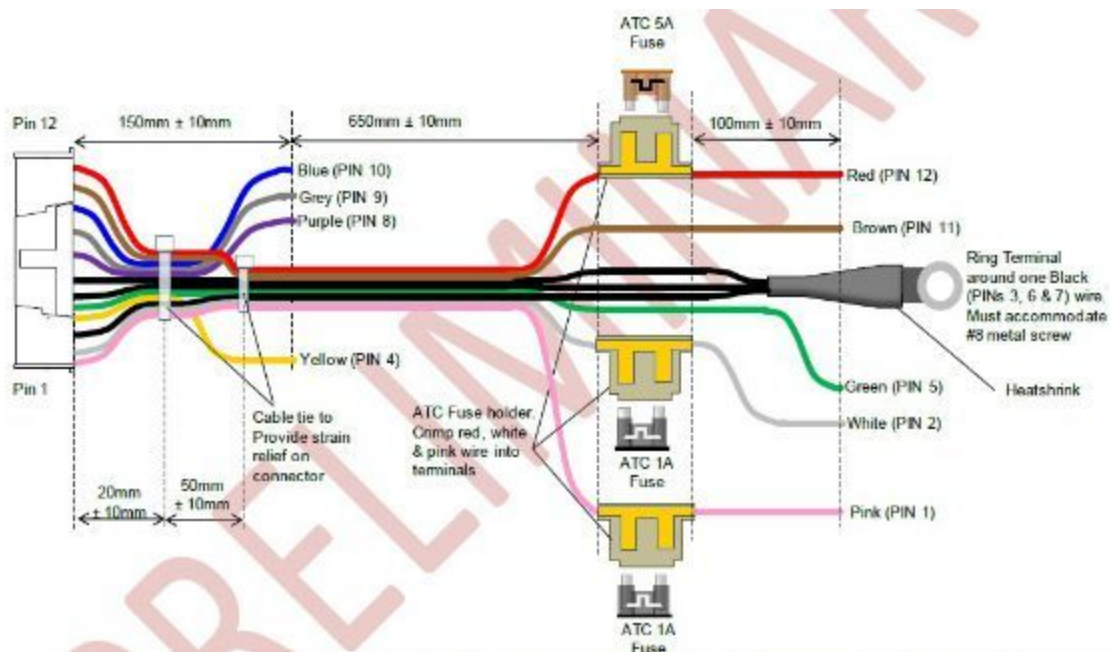
### Starter Disable Wiring

1. (-) Output
2. Max current: 200mA (relay driver)
3. Constant ground (-) output while starter disable is active.

Starter Disable Relay wiring



- 85 – Starter Disable (-) output from GPS Tracking system (green wire)
- 86 – Ignition (+) in run and start
- 87 – Open
- 87a – Starter (key side)
- 30 – Starter (starter side)



### Verification of Starter Disable

- 1) Start engine (wait 2 minutes)
- 2) Request "starter disable", Redtail/Troo will perform this
- 3) Turn off engine (wait 5 minutes)
- 4) Wait 10 minutes, safety period in which vehicle could be restarted in emergency
- 5) Vehicle should NOT start
- 6) Clear the "starter disable" state. (wait approx 2 minutes)
- 7) Start the car

