

Advanced Mobile Gateway AMG1000 Heavy Duty Truck Kit

Installation Guide (AMG1000BHx)

1.0 Safety & Regulatory Information

Important safety and regulatory information on the AMG unit may be found on page 13 of this installation guide.



CAUTION: Be sure to thoroughly review the safety and regulatory information before installing and activating the AMG unit.

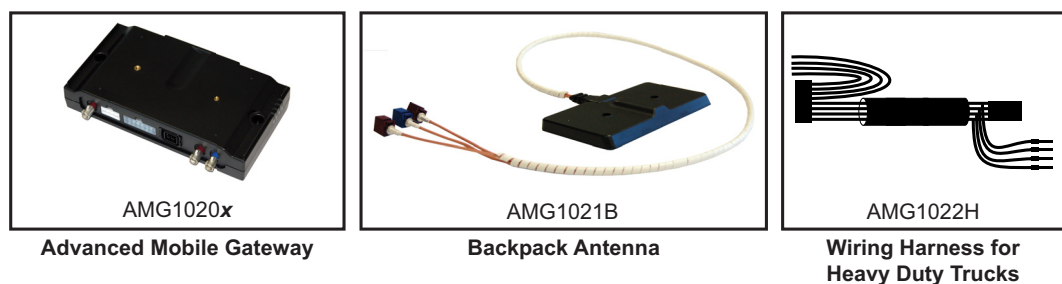
2.0 Kit Contents

There are two AMG aftermarket kits for heavy-duty trucks:

- **AMG1000BHx** kits include the “Backpack Antenna” and will be used in the majority of cases, where both the base unit and the antenna are to be installed in the cab interior.
- **AMG1000AHx** kits include the “External Antenna” and should be used when it is necessary to install the antenna on the cab exterior or if specifically requested by the “fleet” customer. Instructions for AMG1000AHx kit installation are not included here, but are available online: support.truckerlink.com

This is the installation guide for the **AMG1000BHx** kit as shown in Figure 1.

AMG1000BHx kit contents:



where: **x=U** if equipment is to be operated in the USA
x=C if equipment is to be operated in Canada

Figure 1: AMG1000BHx Heavy Duty Truck Kit

3.0 Recommended Tools

The following tools are recommended for the installation:

- **Phillips and Square Drive screwdrivers** – to unscrew the dashboard
- **Pin Extractor** – Deutsch Part Number: 0411-310-1605
- **Punch** – to assist in removing designated wires from J1939 if necessary
- **Needle-nose pliers** – to remove the wedge lock
- **Carpenter knife** – to separate wires C&D from covering over both wires (if needed)
- **Zipties** – to secure loose wiring and perhaps the AMG itself



IMPORTANT – PLEASE COMPLETE THE FOLLOWING TASKS BEFORE INSTALLATION

Turn the truck on and check for existing lamps, warning lights, or anything out of the ordinary:

Investigate issues as needed before beginning the install – this thorough pre-install exam helps troubleshoot issues should any arise after installation.

Pull the diagnostics fuse

This fuse will likely fail if not removed before installation begins. Refer to additional documentation as needed to identify this fuse, as it will be in a different place for each make and model of vehicle.

Activate the AMG:

Step 1: Obtain Required Information

The following information is required to activate an AMG unit:

- **AMG Serial Number** – see Figure 2 for location of this information
- **Fleet Name** – the name of the fleet the vehicle belongs to
- **Truck Number** – the number the fleet uses to identify the vehicle
- **Dealer Code** – the code for the dealership where the TruckerLink unit was purchased from
- **VIN** – the Vehicle Identification Number for the vehicle in which the AMG unit will be installed
- **Odometer** – the vehicle odometer reading from the dash

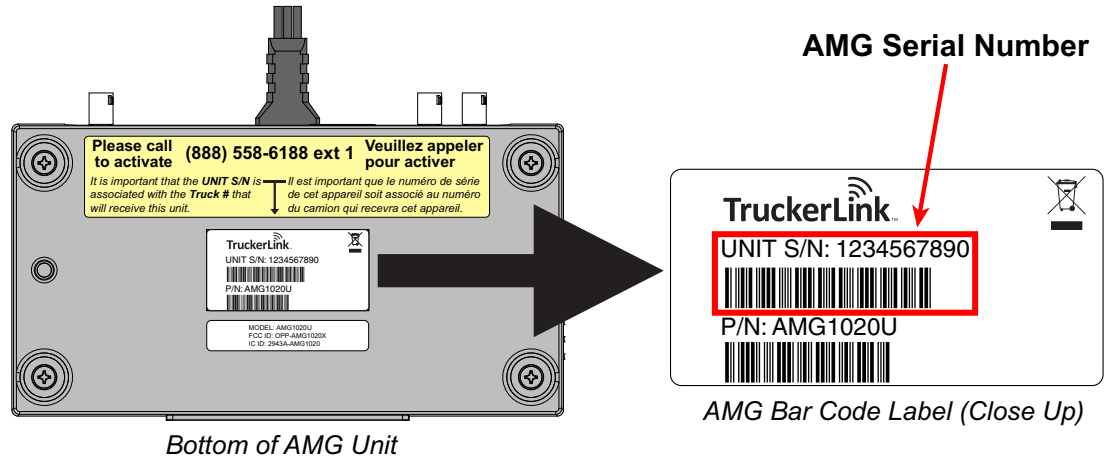


Figure 2: AMG Serial Number

Step 2: Call 1-888-558-6188 ext. 1

Call this number once the information from Step 1 is obtained. A customer service agent will then activate the unit. It will usually take a few minutes to complete.

Identify the best location for installation:

Before the wiring harness, AMG base unit, and antenna are installed, it is strongly recommended that the vehicle cab is inspected for potential installation locations and an installation plan is devised. Keep the following information in mind when locating a suitable install location and plan:

- 1) The AMG base unit may not be installed any further than 16 feet away from the J1939 bus splice.
- 2) The backpack antenna (included in AMG1000BHx kits only) may be installed either on the AMG unit itself or up to 3 feet away from the AMG base unit.
- 3) Antenna reception is critical for effective AMG operation, therefore the antenna must not be obstructed by metal objects. Optimal antenna orientation is shown in Figures 3 & 4.

Unit mounted with backpack attached to base:

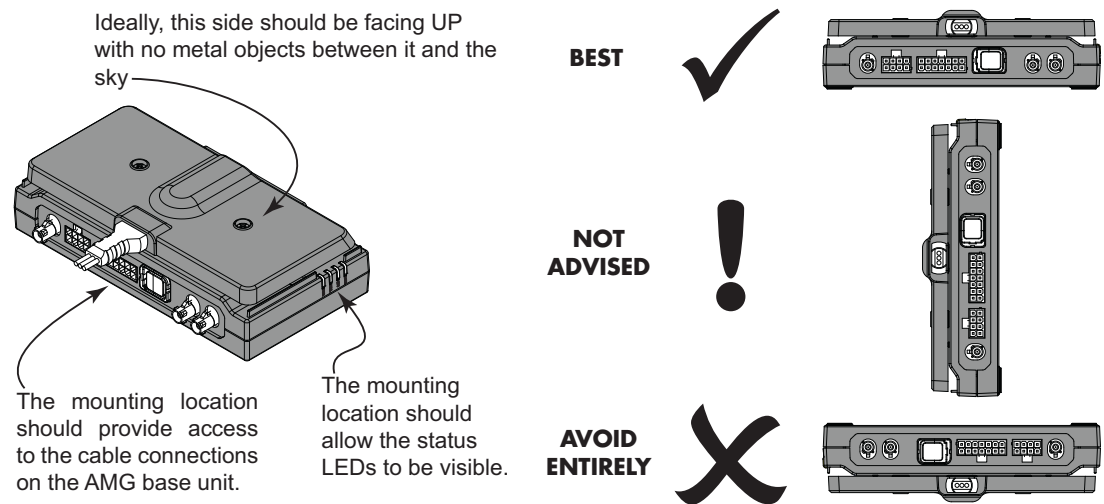
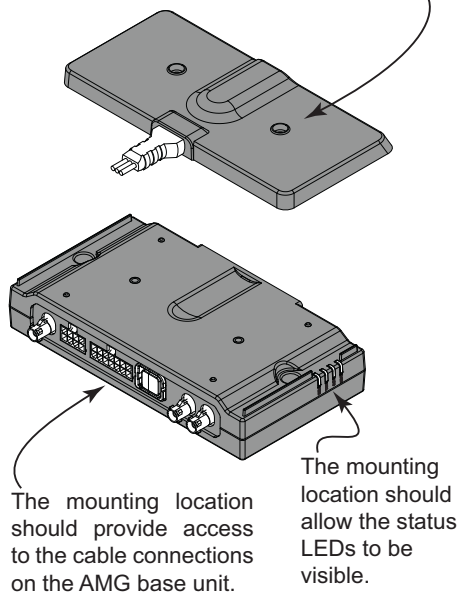


Figure 3: Optimal Unit Orientation (antenna attached to base)

Backpack antenna and base unit mounted separately:

Ideally, this side of the backpack antenna should be facing UP with no metal objects between it and the sky



BEST



NOT ADVISED



AVOID ENTIRELY



AMG BASE UNIT ORIENTATION NOT CRITICAL



Figure 4: Optimal Unit Orientation (antenna separated from base)



Note: Placement behind the dashboard has been most successful in field trials, and is therefore the recommended location for AMGs with the backpack antenna.

A good install location will be one that:

- Is not visible to the driver
- Has clear line of sight to the sky for the backpack antenna, ideally as close to the front of the cab as possible.
- Allows the backpack antenna to mount parallel to the ground – the ideal placement is horizontal without any metal objects between it and the sky. Unscrew the antenna if needed to place the antenna in an ideal place.
- Will allow the technician to be able to see all four LEDs on the unit.
- Allows easy access to the GPS, CDMA, and GSM connections on the unit
- Enables the AMG base unit to be secured via screws, such that the screws are not visible to the driver.



Note: Record the Pre-Installation Information on the Installation Form located in AMG Kit.

PROCEED WITH INSTALLATION ONLY AFTER THE ABOVE TASKS HAVE BEEN COMPLETED



4.0 Connecting the AMG

4.1 AMG Base Unit Connections

The AMG base unit connectors are shown in Figure 5.



Note: There are two cellular antenna connections, one is for **GSM** and the other is for **CDMA**. Be sure to check connections made to the AMG unit thoroughly.

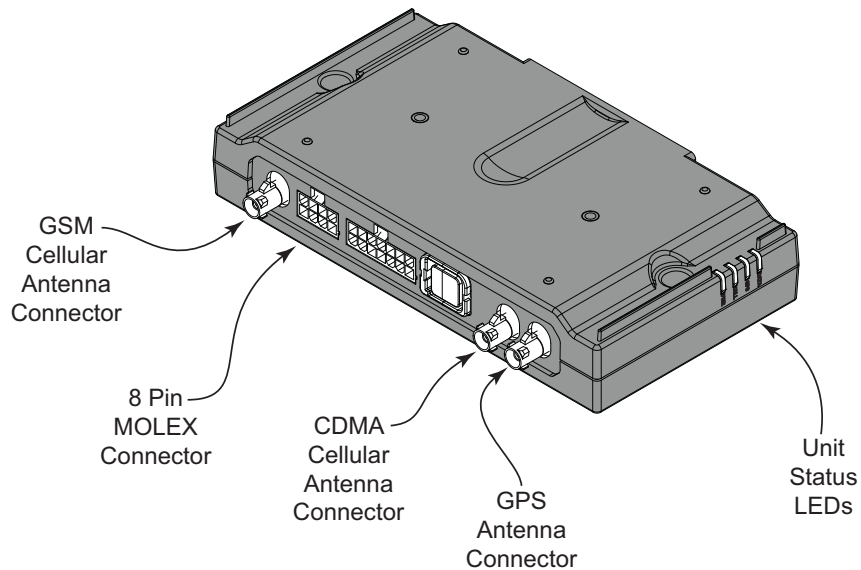


Figure 5: AMG Base Unit Connectors

4.2 Wiring Harness for Heavy Duty Trucks

The Wiring Harness is made from C1204 4-conductor shielded cable with an Molex 8-pin mini fit connector and a Deutsch 4-pin in-line connector.

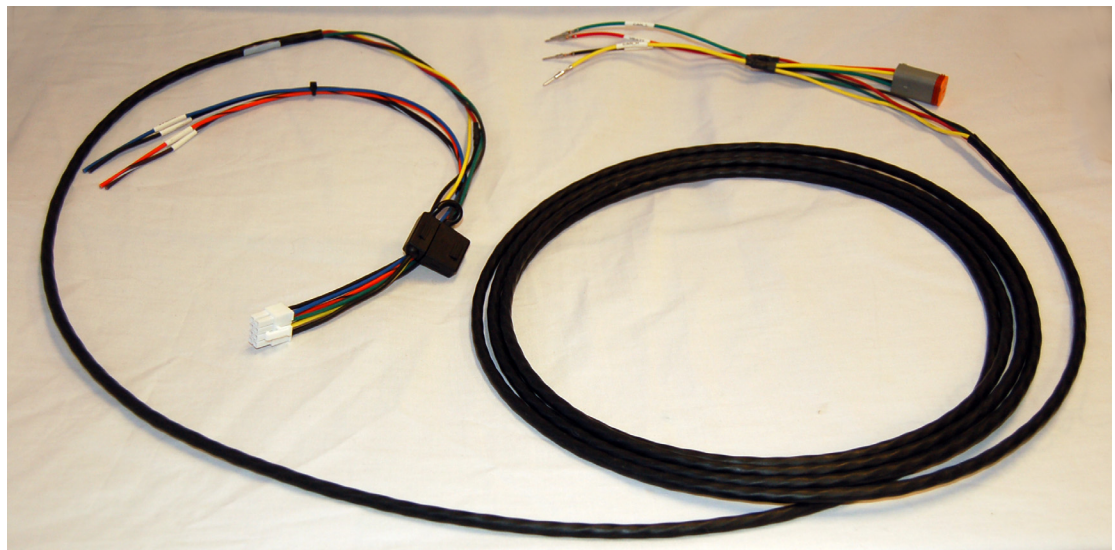


Figure 6: Wiring Harness for Heavy Duty Trucks

Wiring Harness Installation Overview

Figure 7 shows the wiring harness installation overview. The following section provides the detailed installation instructions.

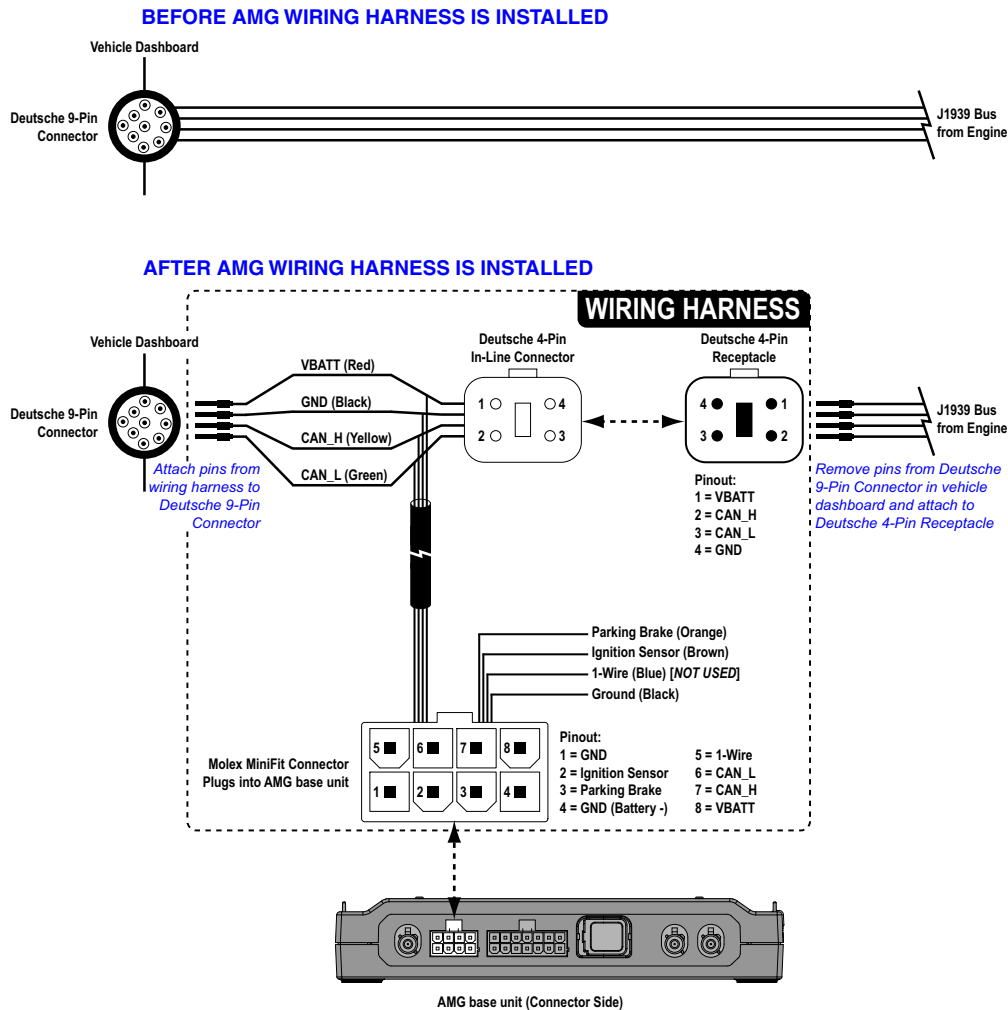


Figure 7: Wiring Harness Installation Overview

4.3 Wiring Harness Installation Steps

- 1) Remove dashboard



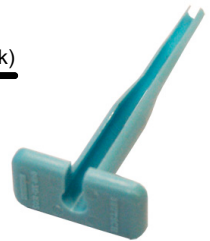
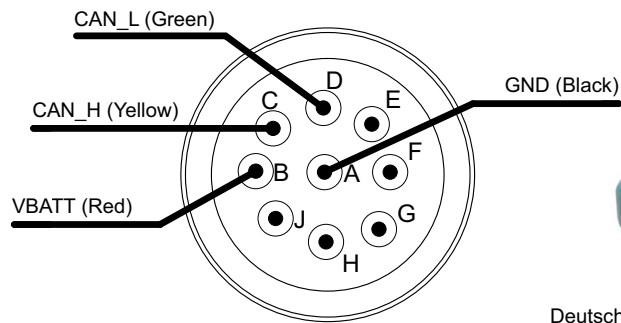
Figure 8: Remove Dashboard

- 2) Locate the vehicle's Deutsch 9 pin connector (normally located on drivers left side under steering wheel and may be covered by a protective cap).



Figure 9: Deutsch 9-pin Connector Location

- 3) Remove the Deutsch 9-pin connector from the panel to access the wiring.



Pin Extractor
Deutsch PN: 0411-310-1605

Figure 10: Removed Deutsch 9 Pin Connector & Relevant Pins

- 4) Remove the pins designated A, B, C, and D from the Deutsch 9-pin connector on the truck using a Deutsch pin extractor (Deutsch Part Number: 0411-310-1605).



Note: As each pin is removed, label each wire with its specific connection type (i.e. CAN_L, CAN_H, VBATT, GND) for later reference, if the colors are not easily identified. Use Figure 1-10 above as a reference.

- 5) On the AMG wiring harness, locate the 4 wires with pre-installed pins as shown in Figure 11. Connect these wires to the A, B, C, and D slots of the vehicle's Deutsch 9-pin connector as described in Table 1 and shown in Figure 11.

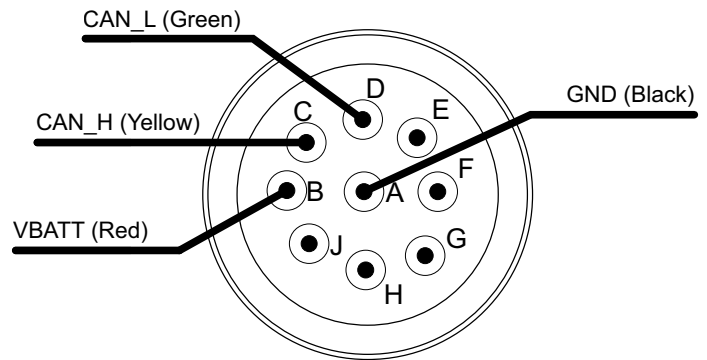
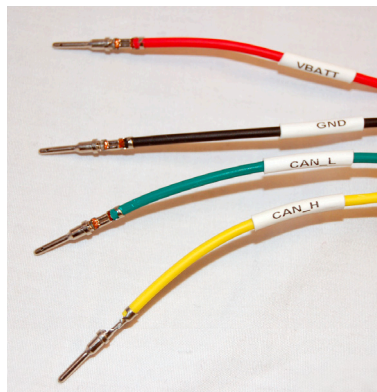


Figure 11: Wiring Harness to CAN J1939 Bus Wiring Configuration

Table 1: Wiring Harness to CAN J1939 Bus Wiring Configuration

Wire Color (from Harness)	Signal	Description	Deutsch 9-pin
Black	GND (Battery -)	Battery Return	A
Red	VBATT (Battery +)	Positive Battery Supply (12VDC)	B
Yellow	CAN_H	CAN bus line, dominant high	C
Green	CAN_L	CAN bus line, dominant low	D

- 6) Locate the Deutsch 4-pin receptacle and remove the wedge lock using needlenose pliers.

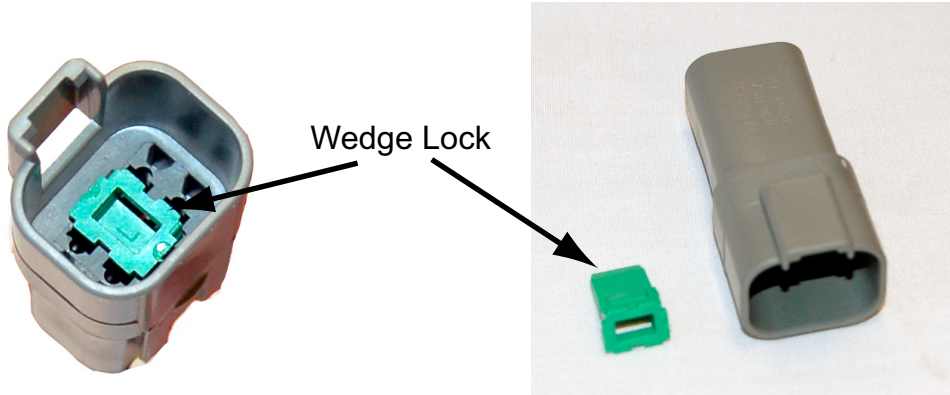


Figure 12: Deutsch 4-pin Receptacle

- 7) Locate the four pins that were removed from the vehicle's Deutsch 9-pin connector in step 4 and insert them into the narrow side of the Deutsch 4-pin receptacle shown in Figure 13. Ensure that pins are fully seated in the receptacle - a 'click' will be heard when done properly. Use the wire labels as reference, if applied in Step 4.

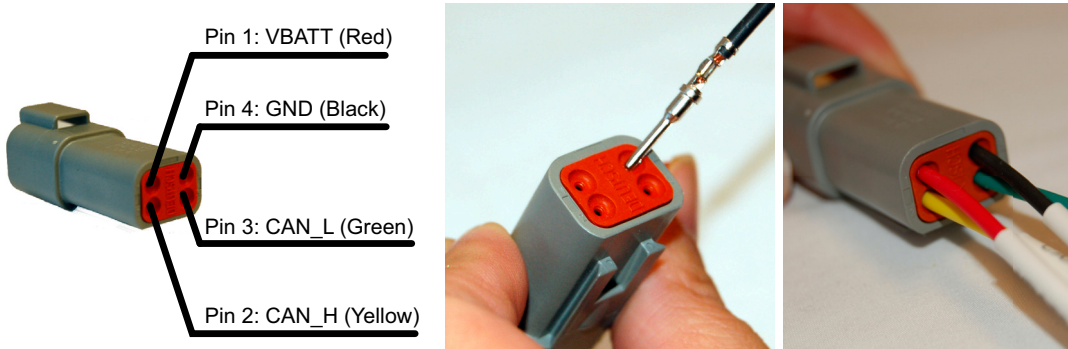


Figure 13: Insert Wires into Deutsch 4-pin Receptacle

- 8) Once all the pins are in, insert the Green wedge lock into the center of the Deutsch 4-pin receptacle using needlenose pliers until it locks in place. Ensure that the pins have been inserted deep enough into the 4 pin receptacle so that no part of the pins are exposed on the back and that the pins protrude above the wedge lock as shown in Figure 14.

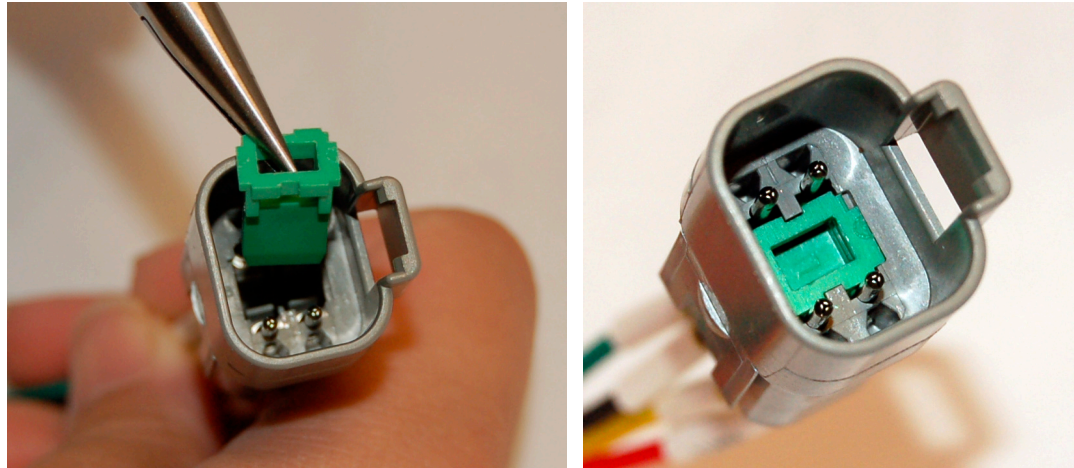


Figure 14: Deutsch 4-pin Receptacle with Wedge Lock

- 9) Connect the Deutsch 4-pin plug housing on the wiring harness to the receptacle housing.



Figure 15: Deutsch 4-pin Receptacle and Housing



Note: If the four wires that extend from the Molex 8-pin connector wires are not to be connected at this time, make sure they are cable tied and out of the way.

- 10) Connect the **Ignition Sensor (Brown)**, **Parking Brake (Orange)** and **Ground (Black)** wires from the Molex 8-pin connector (see Figure 7) accordingly.



CAUTION: The Ignition Sensor and Parking Brake wires on the vehicle may be live. Take appropriate measures such as removing the applicable fuse(s) or disconnecting the vehicle battery before connecting these sensors to the AMG.



Note: The **1-Wire (Blue)** wire is not used and should be capped off to prevent making electrical contact.

- 11) Replace the diagnostics fuse that was removed earlier. Check all wiring connections to ensure that they have been made correctly.

5.0 Mounting the Unit

Once the AMG is connected to the Molex 8-pin connector as well as the Deutsch 4-pin connector, the AMG base unit may be secured to the vehicle. An AMG is properly secured when:

- It cannot be easily moved or jostled around
- The backpack antenna remains horizontal, with a clear line-of-sight to the sky. The backpack antenna needs to be secured also if it has been unscrewed from the AMG.
- The 4 lights on the AMG are visible so that proper operation of the AMG may be confirmed.
- No wires are loose or unsecured.

Securing the unit using Screws (preferred)

The unit may be secured to the vehicle using two #8 Pan Head Screws with a maximum head diameter of 0.325". The recommended maximum torque is 6.0 in-lbs. If holes are to be pre-drilled, space them 6 inches apart as shown in Figure 16.

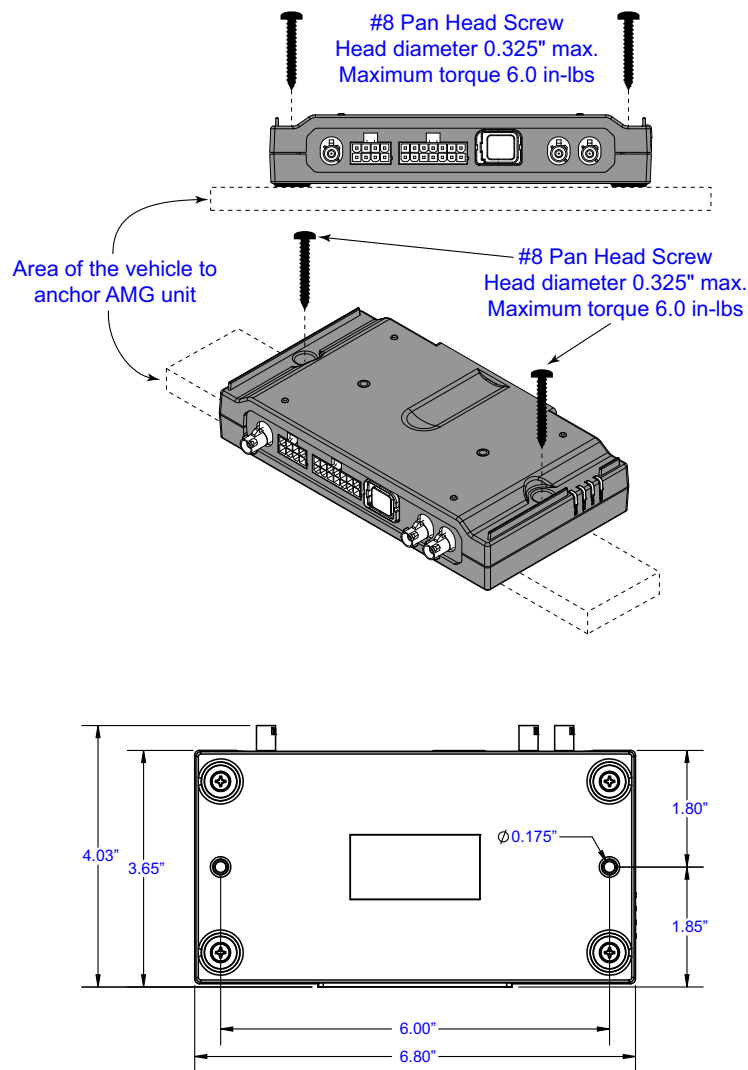


Figure 16: Securing the AMG base unit using Screws

Securing the unit using Zip Ties

The unit may be secured to the vehicle using two zip ties as shown in Figure 17. Note that the zip ties should be positioned inside the zip tie fences on the AMG base unit enclosure.

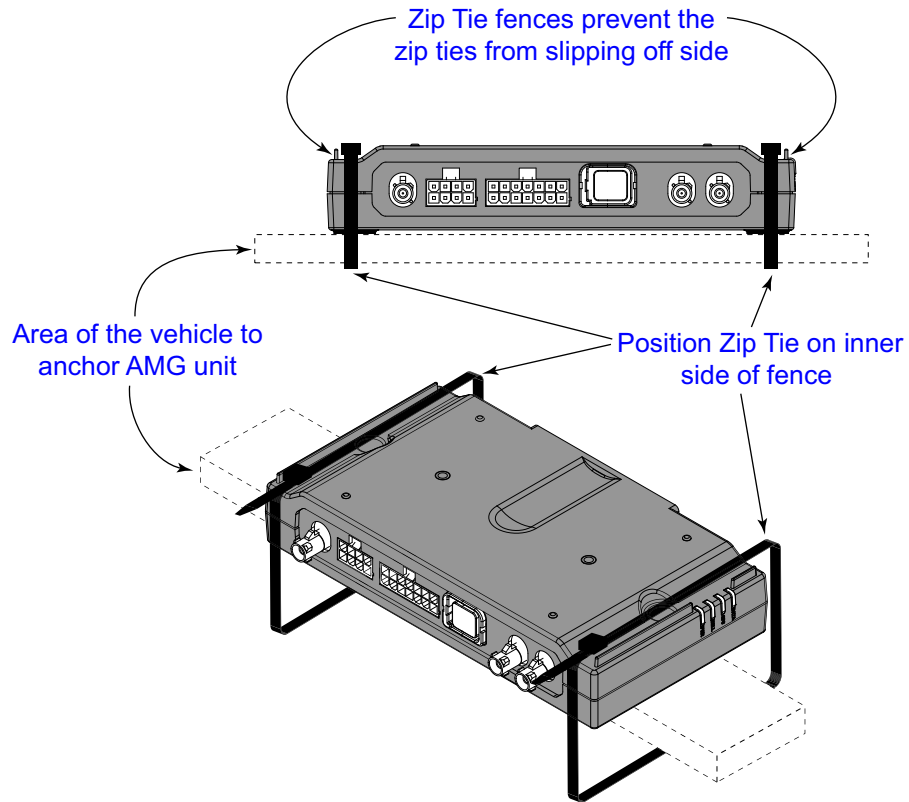


Figure 17: Securing the AMG base unit using Zip Ties

6.0 Mounting the Antenna

The backpack antenna may be mounted directly on the AMG base unit once the base unit is secured to the vehicle. Alternatively, if desired the backpack antenna may be mounted up to 3 feet away from the AMG base unit using two #6 or M3.5 Pan Head Screws with a maximum head diameter of 0.275". The recommended maximum torque is 5.0 in-lbs. If holes are to be pre-drilled, space them 3 inches apart as shown in Figure 18.

#6 or M3.5 Pan Head Screw
Head diameter 0.275" max.
Maximum torque 5.0 in-lbs

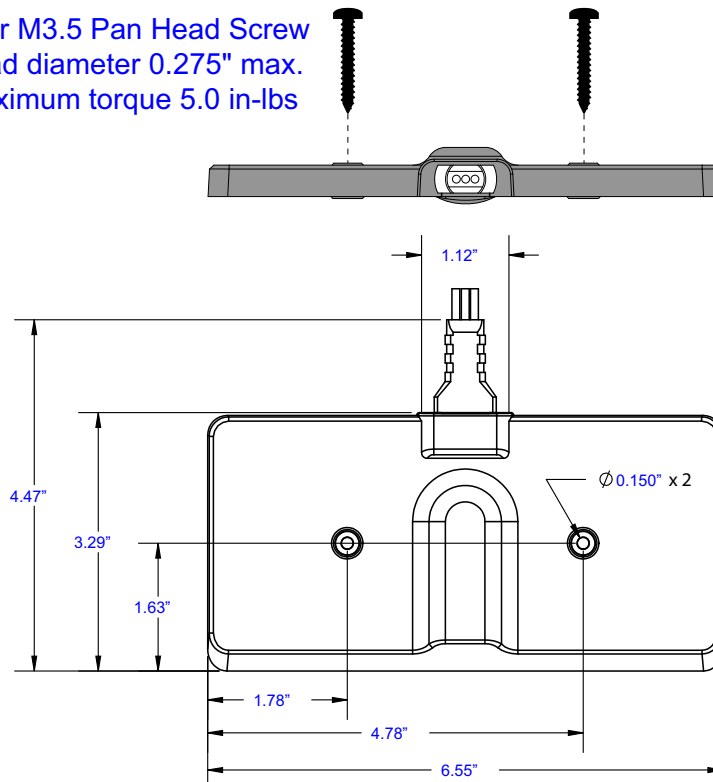


Figure 18: Backpack Antenna Mounting Holes

7.0 Confirm AMG Operation

The unit is working properly when all four lights are green and blinking. Power up the truck to confirm this is the case. PWR, CELL, and DATA lights should begin to maintain a green and blinking status within 60 seconds – the GPS LED may need a few minutes longer. Once all four lights are green and blinking, re-install the dashboard.

IF ALL FOUR LIGHTS ARE NOT GREEN AND BLINKING..

- If the "DATA" light is not green and blinking – confirm the connection to the J1939 databus is completed as described in this guide.
- If "GPS" or "CELL" light is not green and blinking (i.e., unblinking amber), and the vehicle is in a garage, drive the vehicle outside with a clear line-of-sight to the sky. If the vehicle is already outside, check the position of the backpack antenna, making sure it is parallel to the ground and not obstructed by any metal objects. If these lights are still not green and blinking, call 888-558-6188 ext 1 for installation assistance.
- If the "PWR" light is not green and blinking (i.e., all lights are off or PWR is unblinking red), please recheck the power cables and connectors. If the problem persists please call 1-888-558-6188 ext. 1 for installation assistance.



Note: Record the Post-Installation Information on the Installation Form located in AMG Kit.

8.0 Return the AMG Installation Form

Fax the completed AMG Installation form to (206) 316-2302.

9.0 Safety & Regulatory Information

Document Conventions

This document uses the following special formats to emphasize key information. Be aware of all warnings and cautions before you begin to use AMG1000BHx.



WARNING! Whenever you see this icon and heading, the associated text addresses or discusses a critical safety or regulatory issue.



CAUTION: Whenever you see this icon and heading, the associated text discusses an issue which could result in damage or abuse of the equipment. Carefully read and follow these instructions.

Safety Precautions

Read and follow the following safety instructions before installing or operating an AMG1000BHx kit.



WARNING! Before installing or operating this equipment, read all safety, installation and operating sections. Follow all instructions - failure to do so may result in damage to the unit or severe personal injury. Retain this manual for future reference.

Avant d'installer ou d'opérer cet équipement, lisez, toutes les sections de sécurités, d'installations et d'opérations. Gardez ce manuel comme source de référence. Suivez toutes instructions - si non, vous risquez d'endommager la machine ou de vous blesser sérieusement.



WARNING! Servicing should not be attempted by the user. There are no user serviceable parts inside. Refer all servicing to factory qualified personnel.

N'essayez, pas de réparer cet équipement vous même. Référez toutes revisions nécessaire au personnel qualifié de la manufacture.



WARNING! Cleaning - Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.

Le nettoyage - n'utilisez pas de nettoyeurs aérosols ou liquides. Utilisez un tissu humide pour nettoyer.



WARNING! Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD damage occurs when electronic components are improperly handled and can result in complete or intermittent failures. Always follow ESD-prevention procedures when you are working on an AMG base unit or antenna. Ensure that the unit is electrically connected to an earth ground and wear a properly grounded ESD-preventive wrist strap. If no wrist strap is available, ground yourself by touching the metal part of the unit.



WARNING! The installation of your AMG device must comply with vehicle wiring standards and best practices.



WARNING! Fuse-handling equipment must be used to remove or install fuses and shunts when the terminals are energized. The tool must be insulated for the circuit voltage.



WARNING! Disconnect all power before installing or removing a chassis. Never assume that power is disconnected from a circuit. Always check.



Note: Keep the chassis area clear and dust-free during and after installation.



Note: Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.



CAUTION: To comply with Industry Canada RF exposure requirements, a minimum separation distance of 8 inches (20 centimeters) is required between this antenna and all persons.

Pour conformer aux conditions d'exposition RF d'Industry Canada, une distance minimum de séparation de 20 centimètres est exigée entre l'antenne et toutes personnes.

Regulatory Notices

Federal Communications Commission (FCC) Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an occupational/controlled environment

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 8" (20cm) from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

This transmitter is approved for use with the antennas supplied with this equipment. Maximum Antenna gains (including cable loss) are:

AMG1021B Backpack Antenna: +1.6dBi (GSM 850) and +2.9dBi (PCS1900).

AMG1021A External Antenna: -1.0dBi (GSM 850) and -1.7dBi (PCS1900).

Use of different antennas is not permitted. Failure to comply will invalidate FCC rule compliance.



WARNING! Changes or modifications not expressly approved by Vecima Networks Inc. could void the user's authority to operate the equipment.

Industry Canada Compliance

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- This device may not cause interference, and
- This device must accept any interference, including interference that may cause undesired operation of the device.

This device has been designed to comply with safety requirements for exposure to radio waves (SAR) in accordance with RSS-102. This device should be installed and operated with minimum distance 20cm between the equipment and your body.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- *L'appareil ne doit pas produire de brouillage, et*
- *L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

Cet artifice a été conçu pour se plier à la sécurité les exigences pour l'exposition aux ondes radioélectriques (SAR) dans conformité avec RSS-102. Cet artifice devrait être installé et fait marcher avec la distance minimale 20 centimètres entre l'équipement et votre corps.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This radio transmitter (IC: 2943A-AMG1020) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (IC: 2943A-AMG1020) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

AMG1021B Backpack Antenna - Impedance: 50 Ohm Nom.; Maximum Gain, including cable loss: -1.0dBi (GSM 850) and -1.7dBi (PCS1900).

AMG1021A External Antenna - Impedance: 50 Ohm Nom.; Maximum Gain, including cable loss : +1.6dBi (GSM 850) and +2.9dBi (PCS1900).

INSTALLATION STANDARD: The buyer and/or installer agrees that it is fully experienced and properly qualified to perform the installation work provided for herein, and that it is properly licensed, equipped, organized and financed to perform such work. The buyer and/or installer will perform all installation work in accordance with its own methods on a best efforts basis subject to compliance with the instructions set out herein and in accordance with generally accepted professional standards. Failure to do so will render the Vecima Network's Inc. warranty null and void to the maximum extent allowed under applicable law.

LIMITED LIABILITY: Vecima Networks Inc. shall not be liable to the buyer, installer or any third party for any indirect or consequential loss or damages including, without limitation, loss of business or profits whether arising under any indemnity or from negligence, breach of contract or otherwise. Vecima Networks Inc. shall also not be liable if the installation and/or use of the product voids any other warranty which the buyer, installer, and/or any third party benefits from, including but not limited to vehicle manufacturer warranties. The buyer, installer, or any third party's total recovery from Vecima Networks Inc. shall not exceed the price the buyer has paid for the specific unit of product giving rise to the claim.

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