Wi-VAN Gateway and Tethered Trailer Tracking Operator's Guide

29 July 2008

System Description

The Wi-Van Gateway and Trailer Tracking System are made up of several elements. These elements include: (1) Trailer Tracking Modules which mount directly to trailers and transmit unique trailer IDs via RF signals, (2) Gateway Units installed inside the Tractor Cab that receive and process transmitted trailer IDs and (3) the PeopleNet On-Board-Computer.

The Trailer Tracking Modules are self-contained battery powered devices which periodically transmit a unique trailer ID via 433 MHz radio frequency (RF) signal. These units are contained in weather resistant enclosures and are intended to be mounted on the outside of the trailer. Figure 1 shows a typical Trailer Tracking Module.

Figure 1 - Trailer Tracking Module

The Gateway Unit connects to the On-board-computer (OBC) via a single multi-conductor cable. This cable supplies 12 VDC power and provides a serial communication link between the Gateway and OBC. RF signals are received and processed by the Gateway. The processed data is packaged and sent to the PeopleNet network via the OBC. Figure 2 shows a typical Gateway Unit.
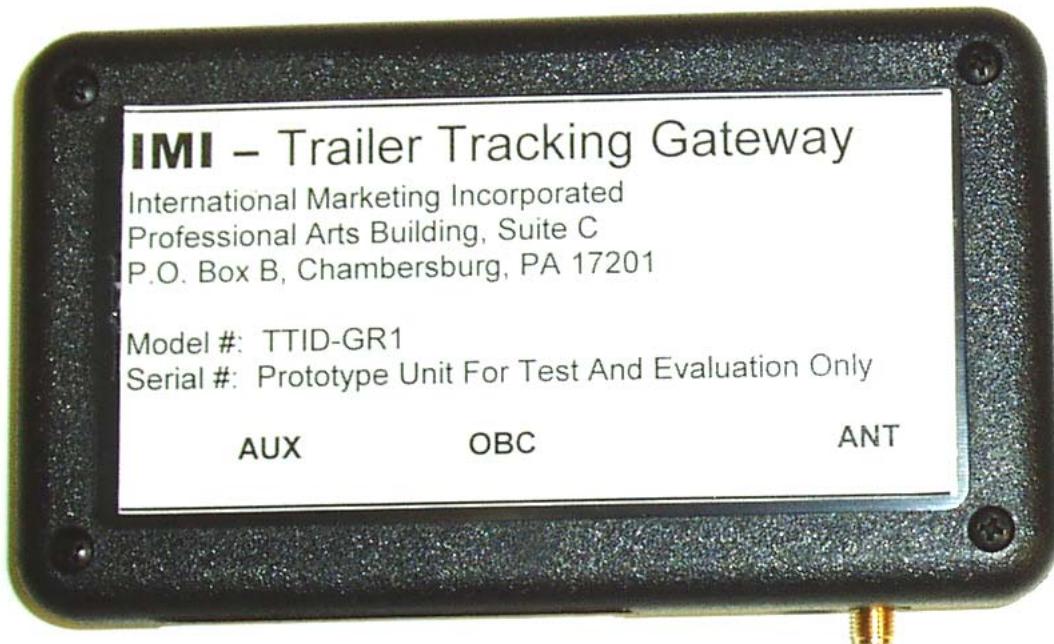
Figure 2 -- Typical Gateway Unit

Theory of Operation

Unique trailer identification numbers are transmitted by Trailer Tracking Modules mounted to the outside of the trailers. Due to the low power level of the transmitter, transmission distance is limited to approximately 75 feet. These 433 MHz RF signals are picked up by an external antenna connected to the Gateway Unit. The Gateway receives and processes the information sent by the Trailer Tracking Modules.

A customized software routine determines when to "qualify" a trailer ID. Qualification involves keeping a list of Trailer IDs, time since last transmission and number of transmitters within range. Once a trailer has been qualified, this ID is packaged with other information such as GPS location, time, etc. and sent via the OBC cell phone network using G3 services.

INSTRUCTION TO THE USER

This device complies with Part 15 of the FCC Rules.

Operation of this device 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.

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.

This equipment has been certified to comply with the limits for a Class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

Wi-VAN Gateway and Tethered Trailer Tracking Installation Guidelines

Upon receipt of your Wi-VAN Gateway and Trailer Tracking Modules please contact g3services@peoplenetonline.com to set up access to the Open Interface.

Trailer Tracking Module

1. Determine location on the front of the trailer where the device will not be visible or easily accessible, does not impede daily operations and protects the device from potential damage as a result of:
   a. hooking/unhooking trailer
   b. hooking/unhooking air hoses
   c. regular trailer maintenance
2. Secure the device to the trailer utilizing the zip ties alone or zip ties with the screws and tie blocks
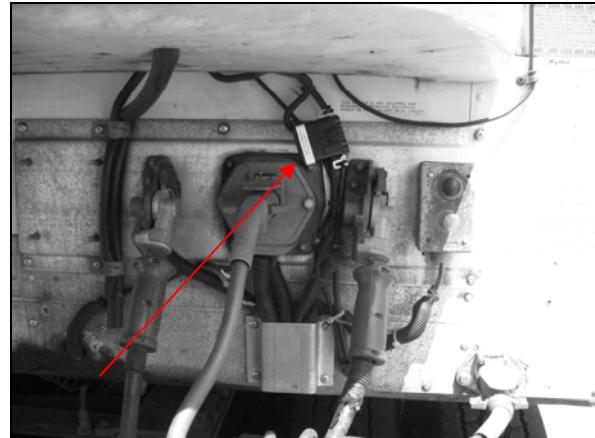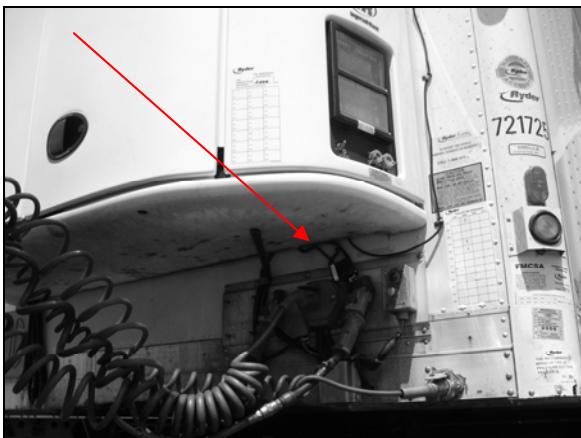
<u>Gateway</u>

1. Locate the OBC (On Board Computer) and the black barrel connector attached to the OBC by a 12 inch cable.

2. Connect the 13 foot powered g3 Services cable to the black barrel connector then wrap the connection in electrical tape.
3. Connect the serial port end of the g3 Services cable to the Gateway box using the inner serial port.
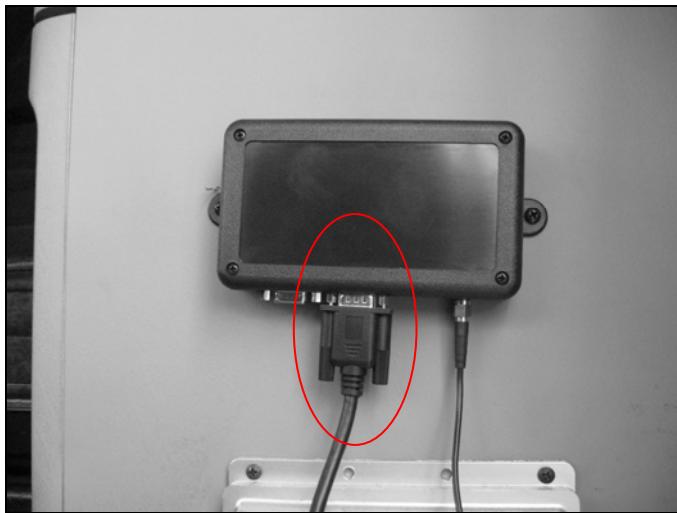
4. Mount the Gateway box in a location that will allow the 15 foot bi-direction antenna to reach the outside back wall of the cab.

a. Ensure that the cable is not pinched, run over sharp edges and does not impede the driver.
5. Determine a location for the bi-directional antenna on the back wall of the semi-cab.
   a. If possible, secure the antenna using zip ties and the double-sided tape on the antenna.

6. Connect the antenna connector to the Gateway box.
   a. Ensure that the cable is not pinched, run over sharp edges and is secured to the truck so that no cable is hanging freely.