



## TracPoint MTG Installation Manual

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# Warranty Information

## TRACPOINT SYSTEMS, LP 12-MONTH LIMITED WARRANTY

### Hardware Warranty

TracPoint warrants that the hardware products (the "Products") shall be free from defects in materials and workmanship for a period of 12 months from the date of shipment from TracPoint. This warranty is limited to you, the original purchaser of the product and is not transferable. The warranty set forth in this paragraph shall not apply to software/firmware products.

### Software and Firmware License, Limited Warranty

TracPoint software and/or firmware products (the "Software") are licensed and not sold. Its use is governed by the provisions of the applicable End User License Agreement ("EULA"), if any, included with the Software. In the absence of a separate EULA included with the Software providing different limited warranty terms, exclusions, and limitations, the following terms and conditions shall apply. TracPoint warrants that this Software product will substantially conform to TracPoint's applicable published specifications for the Software for a period of ninety (90) days, starting from the date of delivery.

### Warranty Remedies

During the 12-month warranty period, TracPoint will repair or replace, at our option, any defective products or parts at no additional charge provided that the product is returned, shipping prepaid, to TracPoint in accordance with TracPoint's standard return material authorization procedures. You are responsible for insuring any product so returned and assume the risk of loss during shipping. All replaced parts become the property of TracPoint.

During the 12-month warranty period, TracPoint will also provide any software updates, at its option, at no additional charge. Any additional hardware that may be required to support the upgrade will be quoted as an option at your request.

Equipment add-ons, software modules, or software upgrades purchased or provided at no charge for existing equipment are warranted for the length of the existing equipment warranty, extended warranty or 90 days (whichever is less).

### Warranty Exclusions and Disclaimer

THESE WARRANTIES SHALL BE APPLIED ONLY IN THE EVENT AND TO THE EXTENT THAT: (I) THE PRODUCTS AND SOFTWARE ARE PROPERLY AND CORRECTLY INSTALLED, CONFIGURED, INTERFACED, MAINTAINED, STORED, AND OPERATED IN ACCORDANCE WITH THE MANUFACTURER'S RELEVANT OPERATOR'S MANUAL AND SPECIFICATIONS, AND; (II) THE PRODUCTS AND SOFTWARE ARE NOT MODIFIED OR MISUSED. THE PRECEDING WARRANTIES SHALL NOT APPLY TO, AND TRACPOINT SHALL NOT BE RESPONSIBLE FOR DEFECTS OR PERFORMANCE PROBLEMS RESULTING FROM (I) THE COMBINATION OR UTILIZATION OF THE PRODUCT OR SOFTWARE WITH PRODUCTS, INFORMATION, DATA, SYSTEMS OR DEVICES NOT MADE, SUPPLIED OR SPECIFIED BY TRACPOINT; (II) THE OPERATION OF THE PRODUCT OR SOFTWARE UNDER ANY SPECIFICATION OTHER THAN, OR IN ADDITION TO, TRACPOINT'S STANDARD SPECIFICATIONS FOR ITS PRODUCTS; (III) THE UNAUTHORIZED MODIFICATION OR USE OF THE PRODUCT OR SOFTWARE; (IV) DAMAGE CAUSED BY ACCIDENT, LIGHTNING OR OTHER ELECTRICAL DISCHARGE, FRESH OR SALT WATER IMMERSION OR SPRAY; OR (V) NORMAL WEAR AND TEAR ON CONSUMABLE PARTS (E.G., BATTERIES, ANTENNA, CABLES).

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### **Regulatory Compliance FCC**

The Spider MT-G 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.

### **Disclaimer**

The information and instructions contained within this publication comply with all FCC, GCF, PTCRB, RTTE, IMEI and other applicable codes that are in effect at the time of publication.

TracPoint Systems, LP disclaims all responsibility for any act or omissions, or for breach of law, code or regulation, including local or state codes, performed by a third party.

TracPoint Systems, LP strongly recommends that all installations, hookups, transmissions, etc., be performed by persons who are experienced in the fields of radio frequency technologies. TracPoint Systems, LP acknowledges that the installation, setup and transmission guidelines contained within this publication are guidelines, and that each installation may have variables outside of the guidelines contained herein. Said variables must be taken into consideration when installing or using the product, and TracPoint Systems, LP shall not be responsible for installations or transmissions that fall outside of the parameters set forth in this publication.

TracPoint Systems, LP shall not be liable for consequential or incidental damages, injury to any person or property, anticipated or lost profits, loss of time, or other losses incurred by Customer or any third party in connection with the installation of the Products or Customer's failure to comply with the information and instructions contained herein.

# 1. Introduction

## 1.1 About the GSM/GPRS Spider MT-G

The GSM/GPRS Spider MT-G is an Automated Vehicle Locating (AVL) device that utilizes a GSM/GPRS modem and a Global Positioning Satellite (GPS) module. Working together, these technologies allow the Spider MT-G to simultaneously act as a stand alone GPS reporting device and wireless data retrieval unit. The Spider MT-G provides a flexible AVL solution with user definable Input/Output (I/O), six selectable National Maritime Electronics Association (NMEA) GPS data format, Trimble ASCII Interface Protocol (TAIP) GPS data format, and Enfora's own proprietary Binary GPS data format. The Spider MT-G is designed to work in a stand-alone mode as well as with computing device operating Windows 98 SE, NT 4.0 (service pack 6), 2000 Professional, ME, and XP Professional operating system. Enfora's Spider MT-G provides maximum AVL versatility in a single affordable device.

## 1.2 About This Manual

Contained in this manual are instructions on how to install and configure the GSM/GPRS Spider MTG. Please follow the instructions herein closely to avoid damaging the GSM/GPRS Spider MT-G.

## 1.3 Contents of Basic Package

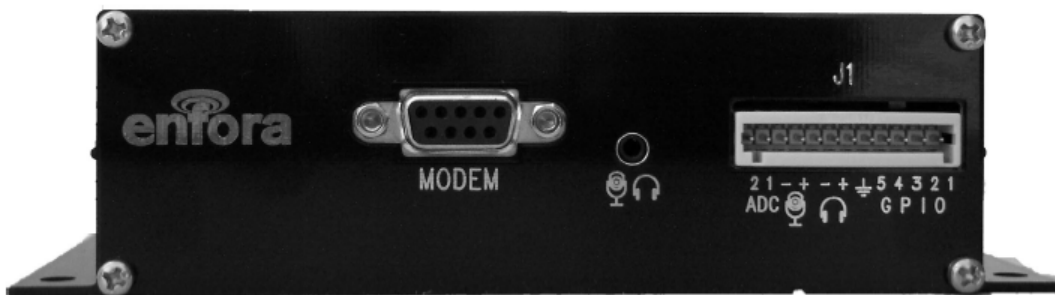
- MTG mobile unit
- 3-wire power cable
- User installation guide

## 1.4 Spider MT-G Front and Back View

Figure 1 - Spider MT-G Front View



Figure 2 - Spider MT-G Back View



## 2. Product Specifications

System Requirements		Application Interface	
Interface:	Serial – Host DSUB 9 connector	• Host Protocols:	PPP, AT Commands, UDP, TCP/IP
L x W x H:	4.0 x 5.0 x 1.6 in	• Internal Protocols:	UDP, TCP/IP (future release)
Housing:	One Piece, seamless Aluminum Extrusion	• API Control/Status:	AT or UDP
TX Power:	Class 4 (2W @900 MHz)	• Friend's IP Feature	
	Class 1 (1W @1800/1900 MHz)	• Auto-Registration software upon power-up	
Slot Class:	MS12 (4RX/4TX, 5 MAX)	• Over the air commands for:	
		- I/O Control	- Status Change Reporting
		- GPS TX Interval	- GPS Content
		- Binary Reporting	- Event Reporting
		- Timed Reporting	- Distance Reporting
		- Alarm Reporting	- Geo-Fencing
Dual Band Operation		SIM Card / Interface / I/O	
EGSM 900/DCS 1800 or PCS 1900		• On board 3V SIM for secure access	
		• External SIM accessible via end cap	
		• External headset for audio connection	
		• TNC Antenna Connector for GSM	
		• 5 Pin I/O – 5 User Defined Digital I/O	
		3 LED Status indicators	
		1 Ignition Sense	
		• 2 A/D Input Ports	
		• 1 Audio Input/Output	
GPRS Packet Data		Environment	
Mode:	Class B, Multislot 12	Operating:	-20°C to +60°C
Protocol:	GPRS Release 97 and 99, SMG 31	Storage:	-40°C to +85°C
Coding Schemes:	CS1 – CS4	Humidity:	Up to 95% non-condensing
Packet Channel:	PBCCH/PCCCH		
GSM Functionality		Status Indicator	
Voice:	Full Rate, Enhanced full rate and half rate	• Power ON	
CS Data:	Asynchronous, transparent and non transparent up to 9.6 KB	• Registration Status	
GSM SMS:	Text, PDU, MO/MT Cell broadcast	• GPS Status	
		• User Defined	
Certification (Pending)		Power	
FCC:	Part 15	DC Voltage:	5 – 30 V
GCF:	Version 3.8.2	Spider MT-G @ 12V	
PTCRB:	Version 2.7.2	- Low Power Mode	< 25 mA
Industry Canada		- GSM 1TX/1RX (Avg)	115 mA
RTTE		- GSM 1Rx (Avg)	64 mA
GPS Functionality		Part Number	
• SMA Antenna Connector for GPS		GSM2202	900/1800
• Supports 3.3V Active Antenna		GSM2203	1900
• GPS Protocols: NMEA, TAIP, Enfora binary			
• Stored GPS Messages Feature			

## 3. Installation

Instructions provided in this section describe the hardware installation of the Spider MT-G device. To install the Spider MT-G in a vehicle, follow these steps:

### 3.1 Prior to Installing the Unit

- Read this manual in its entirety and become familiar with the size and dimensions. To avoid personal injury or damage to the unit, ensure that all steps are followed carefully.
- Before installing the unit, check all electrical functions of the vehicle to include A/C, gauges, AM/FM stereo, etc.
- Become familiar with the physical dimensions of the unit, the power cable coding, and the antenna cables.
- Become familiar with the vehicle's electrical power system, dashboard construction and paneling, and the vehicle's interior. You are looking for a place to mount the unit and checking to see how the cables will be routed and to what power source
- Place the unit on a test bench and power on the modem by connecting the supplied power cable to the unit with 12VDC. Make sure you receive a power light and USR1 light turns green. This will ensure that the modem is programmed and ready for installation and that the unit is operating prior to install.

### 3.2 Selecting a suitable location

#### Power

The MTG unit supports a power source that ranges from 6V-30V. Determine the power source for the main power, preferably to the electrical distribution center on the vehicle or a battery pick-off point. Also determine what source of power will be used to supply an ignition sense voltage to the unit. Preferably, this will come from a fuse tap in the fuse panel of the vehicle that supplies a clean 6-30V when the vehicle engine is on and no voltage when the engine is off. Use a manufacturer specified vehicle ground point for the ground input to the modem.

- Do not tap into vehicle manufacturer cable lines or harnesses that supply vehicle equipment
- Do not surpass the declared fuse rating of 3A
- Install the fuse as close to the power source as possible

#### Modem Unit

Determine the location of the modem unit. Most units can be conveniently mounted under the steering column or in the dash for most passenger vehicles, vans, and trucks. For heavy trucks and equipment, choose a location that is interior to the vehicle and has a solid surface.

- Avoid locations that might expose the device to excessive heat or moisture
- Do not mount the modem unit within 12 inches of the vehicle or ABS computer
- The location chosen should not require the unit to be modified
- Ensure the location is not subject to extreme vibration

#### Antenna

Antenna location is critical for optimum performance and location accuracy. Inspect the vehicle body and choose a location that has an unobstructed view from the sky. GPS signals can penetrate through plastic, glass, and fiberglass. GPS signals do not penetrate through metal or dense materials.

- Mount the antenna horizontally so it is facing the sky
- Mount the antenna at least 18" from any other antennas
- Avoid location that are shielded from satellite signals such as overhead racks
- Choose a location that allows for access both above and below the mounting surface
- Choose a location that is within the cable length of the modem unit

### 3.3 Equipment Installation

Upon determining the location for power, the antenna, and the modem unit, proceed to install the equipment.

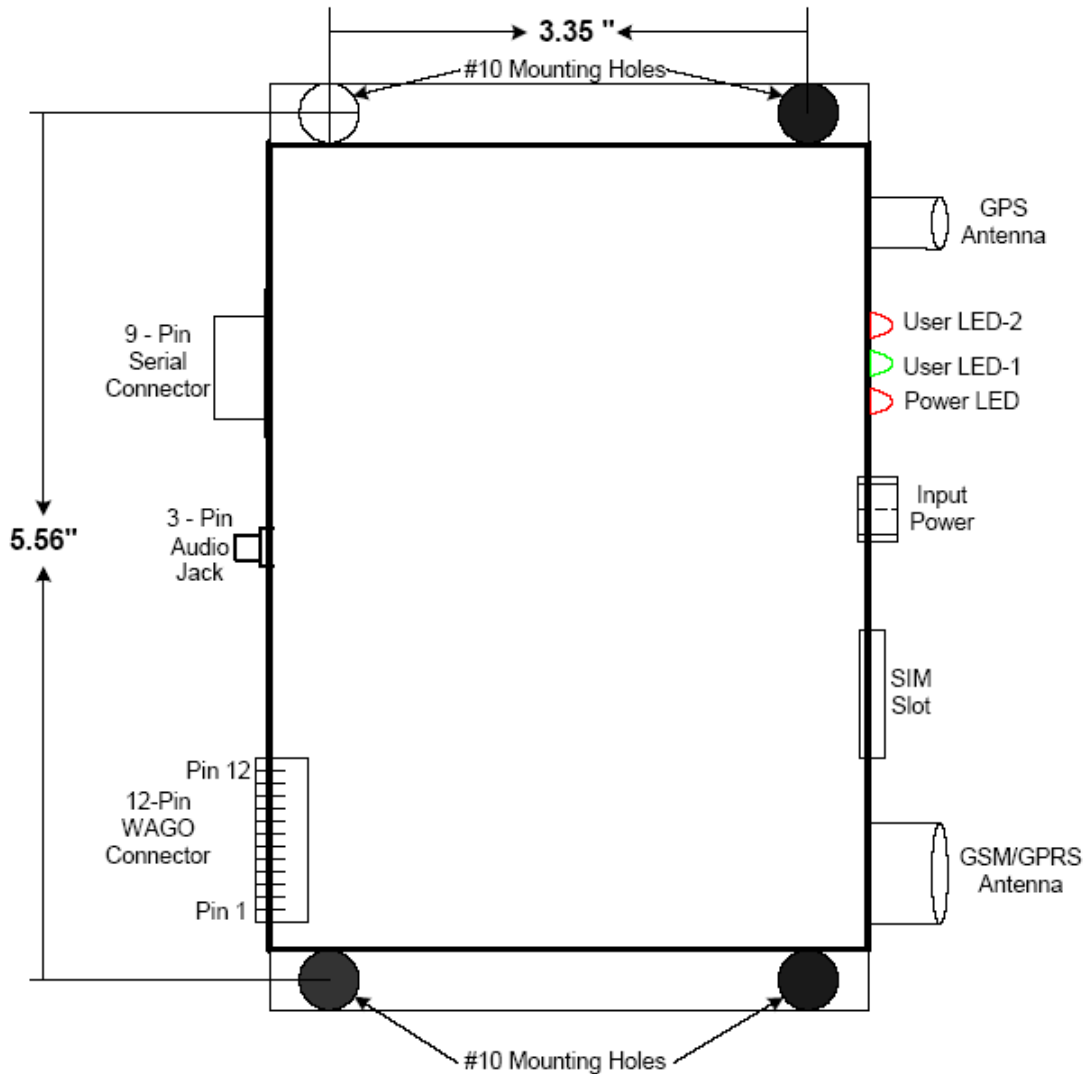
#### Modem

Proceed to install the modem unit in the pre-determined location in a manner that the antenna and power cable can be easily installed.

- Hold the Spider MT-G in place and mark the location for mounting screw holes
  - Using the markings as a guide, drill mounting holes in those positions
  - Align the Spider MT-G in the drilled holes and secure it with mounting screws
- OR
- Affix the modem to a dashboard support brace using wire ties or double sided tape



The Spider MT-G is **NOT** a waterproof or sealed device. Care must be taken to ensure the device kept away from water or any other liquids.



**Figure 3 - Mounting dimension of a Spider MT-G**

#### Antenna

Proceed to install the antenna in the pre-determined location. Disconnect power to the modem unit if already connected before connecting the antenna. Route all antenna cables through vehicle channels, in the headliner, underneath the carpet, and behind the vehicle panels. The antenna should be mounted horizontally without obstruction to the sky.

Care needs to be taken when connecting the antenna since the right type of antenna will be required for proper operation of the modem. The antenna connector on the GSM/GPRS Spider MT-G model is a TNC female connector. The antenna has to be connected to the connector labeled "MODEM ANT". See Figure 8 – GSM



**Figure 8 - GSM Antenna Connection**

The GPS receiver inside the Spider MT-G powers the preamplifier in the GPS antenna (Active-style) by applying a power of 3.3 Volts to the center conductor of the RF input to the GPS receiver. If a passive-style GPS antenna must be used, please verify that it has a DC block installed in order to prevent shortening to ground. GPS antenna connector on the Spider MT-G model is a SMA female connector. The GPS antenna must be placed in an area where it can have direct view of the sky.

The GPS antenna must be connected to the connector labeled “GPS ANT”. See Figure 9 - GPS Antenna Connection.



**Figure 9 - GPS Antenna Connection**

- All cables should be installed in such a way that reduces cable stress
- Do not cut, modify, tightly bend or fold the cables
- Do not tightly roll the excess antenna cable
- Do not connect the antenna cables with power supplied to the modem, damage may occur

Power

Proceed to install the power cable in the pre-determined location. Main power (red cable) should be routed to the vehicle battery distribution point. Ignition sense power (white cable) should be routed to the vehicle ignition-switched battery pickoff point in the vehicle fuse box. The ground wire (black cable) should be connected to a manufacturer specified ground point.

Red	-	6-30V DC current (Fuse at 3A)
Black	-	Common/Ground
White	-	Vehicle Ignition Sense (Fuse at 3A)



**Figure 10 - Power Connection**

- Install a 3A fuse in-line to both main power and ignition lines
- Route the power cable from the modem unit to the power point, remove excess power cable
- Connect the main power, ignition power and ground before connecting to the modem unit

### 3.4 LED Operation

Upon completing the installation of the modem unit, antenna cables, and connecting power, ensure the following LED'S are all lit. The power light will be on once power is applied. The USR1 light will blink for a few seconds after power is applied and then should stay lit indicating the modem has powered up and is registered on the GSM network. The USR2 LED indicates when a GPS fix has occurred and will stay lit. It will be necessary to move the vehicle outside with line-of-sight to the sky to obtain a GPS fix. This may take up to 3 minutes to obtain a fix if the modem has never been used or if the unit does not have a valid last known GPS position. If the unit does have a last known position, the acquisition process should take less than 1 minute.

- |             |  |
|-------------|--|
| PWR:        | Indicates power to the modem. LED is on when power is turned on and the modem is operational. LED is off when power is removed or when the modem enters low power mode.  |
| User LED 1: | This LED can be configured to display registration, GPS fix status, or other user functions. By default, this LED indicates GSM/GPRS registration status. LED state of OFF indicates that the device is not attempting to register to the network. Blinking LED indicates that the device is trying to connect to the network. LED always ON indicates that the device is attached to the network. |
| User LED 2: | This LED can be configured to display registration, GPS fix status, or other user functions. By default, this LED indicates GPS fix status. The LED remains in OFF state when invalid GPS data is received. The LED remains ON when valid GPS data is received.  |

### 3.5 Complete Installation

Upon completing installation of the modem, antenna, and power cables, ensure that all mounts and connections are properly secured and that all cables are secured with wire ties or loom. Ensure that all vehicle systems are tested and functioning properly. Vehicle should be outside and allowed to obtain a GPS fix for at least 5 minutes. It may be convenient to complete the vehicle installation worksheet during this time.

Contact a technical support representative from TracPoint at (800)578-3085 to confirm the unit is on-the-air and reporting its current position once a GSM network registration AND GPS fix have occurred as indicated by the USR1 and USR2 LEDs.

#### **4. Technical Support**

If you have a problem and cannot find the information you need in this manual, please contact your local dealer or TracPoint technical support for assistance.

Website: <http://www.tracpointsystems.com>

Phone: (800)578-3085

Email: [support@tracpointsystems.com](mailto:support@tracpointsystems.com)

Before contacting technical Support, please have your modem's International Mobile station Equipment Identity (IMEI) number and vehicle installation worksheet ready for the Technical Support representative. If you did not record the IMEI number, you can find this on a label on the TracPoint MTG unit.