

The background of the cover is a light blue map with a grid of streets. A thick orange border frames the map, starting from the top left, going right, then down, then left, and finally up to the top right. The text is overlaid on this map.

Hardware Manual

Shadow Tracker™ Jr.
Shadow Tracker™ Pro
Shadow Tracker™ Performer



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Federal Communications Commission (FCC) Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment operates in a commercial environment.

- This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
- Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
- Only peripherals certified to comply with the Class A limits may be attached to this device. Operation with non-certified peripherals or peripherals not recommended by Advanced Tracking Technologies, Inc. are likely to result in interference to radio and television reception.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits.

ADVANCED TRACKING TECHNOLOGIES, INC. is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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INTRODUCTION

Please read this manual completely before use.



Thank you for purchasing Advanced Tracking Technologies, Incorporated the Shadow Tracker™ Professional or Shadow Tracker™ Lite, the cornerstone of the MobilEyes™ vehicle tracking system. MobilEyes™ is a unique hardware and software combination, used for the tracking needs of today's mobile workforce. Presently, ATTI™ offers three Shadow Tracker™ units for these software packages. They are:

Shadow Tracker™ Jr.
Shadow Tracker™ Pro
Shadow Tracker™ Performer

The Shadow Tracker™ units use a stationary system of satellites placed around the globe in orbit by the Department of Defense (DOD). Signals received from one satellite are compared to signals of three others in view. The small

differences in reception can be used to calculate the position anywhere on the Earth through triangulation.

The Shadow Tracker™ units easily install into vehicles and use the vehicles electrical system. The Shadow Tracker™ Professional or Shadow Tracker™ Lite software is designed to handle data from one vehicle at a time. Therefore, anytime you plan to relocate the Shadow Tracker™ unit in a different vehicle it should first be cleared of existing data.

The Shadow Tracker™ unit gathers and stores vital GPS data which is downloaded into the application software providing detailed distance, location and time information necessary for accurately monitoring your mobile staff. Data may appear as if the unit has wandered for short distances and/or brief periods of time. This may be caused by atmospheric

CONNECTING THE UNIT

Getting to know your unit

The POWER connector is located on the side of the Shadow Tracker™ Pro and Jr. units and in the back of the Shadow Tracker™ Performer unit. It is used to power the unit both while in the vehicle and while downloading to the PC. The DATA connector, also located on the side of the Shadow Tracker™ Pro and Jr. units and in the back of the Shadow Tracker™ Performer unit, is only used to connect the unit to the PC for download. It is not used while in the vehicle.

The ANTENNA connector is located on the rear of the unit and is connected to the supplied GPS antenna only. DO NOT connect any GPS antenna other than the one supplied or damage to the unit and /or antenna will result.

The Shadow Tracker™ Status Indicator LED is located on the front of the unit. The LED will glow RED when the unit is powered but is NOT receiving an adequate signal from the



GPS satellites. Once the unit has acquired an adequate signal the LED will turn GREEN.

Connecting the unit to your vehicle

Mounting the Shadow Tracker™ unit

The Shadow Tracker™ unit is **NOT** weather proof and must be mounted inside the vehicles passenger compartment. The unit must **NOT** be placed in direct sunlight. The recommended mounting location is under the dashboard, but the unit may be mounted anywhere inside the vehicles passenger compartment out of direct sunlight.

Connecting the Antenna to the unit


Connect the included GPS antenna to the port located on the rear of the Shadow Tracker™ unit labeled **Antenna**. Be careful not to bend the antenna connector when connecting or disconnecting it from the Shadow Tracker™ unit.

Placing the Antenna

The antenna is attached to the vehicle with the included magnetic mount. Antenna placement is critical for the best performance. The antenna requires an unobstructed view of the sky for accurate satellite acquisition. Recommended placement for the GPS antenna is on top of the vehicle with a clear view of the sky. You may choose to mount the antenna 'out of sight'. Keep in mind that the antenna will obtain a stronger, less disrupted signal if it is mounted under plastic or glass rather than covered by metal.

Where ever you decide to mount the antenna you must make

CONNECTING THE UNIT


 Be sure that the unit is able to acquire an adequate signal from the satellites. This is indicated by the LED light on the front of the Shadow Tracker™ unit. The LED will be RED when the unit is powered on and there is NO signal being received from the satellites. When there is an adequate signal the LED will turn GREEN.

Note: Be aware that if the unit has been powered off for 8 hours or

more it may take up to 10 minutes from the time the antenna is connected and the unit is powered on for the unit to acquire an adequate signal from the satellites and the LED to turn GREEN. If it takes longer than 15 minutes to acquire a signal then the antenna must be moved to a more suitable location. If the LED is not GREEN then the unit cannot determine the vehicles location or speed and the system will not function properly.

Powering the Shadow Tracker™

The POWER connection, located on the side of the unit is used to power the unit both while in the vehicle and while downloading to the PC.

The battery on the vehicle serves as the power source for the  Shadow Tracker™ units however, if a unit is left on for an extended period in which the vehicle is not running the unit may drain the vehicle battery to the point that the vehicle cannot be started.

Insert the large end of the DC power cigarette adapter into a 12 volt power port or cigarette lighter socket in your vehicle. Insert the other end into the **Power** connector located on the Shadow Tracker™ unit.

DOWNLOADING THE UNIT

Note: The unit should only be connected to a '12 volt center positive' power port. Damage to the unit will result if connected to a reversed polarity or higher voltage outlet. If you are not certain that your power outlet is '12 volt center positive' then do not connect the Shadow Tracker™ unit at this time. Have the outlet checked by your local automotive electronics expert or auto mechanic.

The Shadow Tracker™ unit must remain connected to a continuous power supply during vehicle movement for accurate location readings.

Alternative Power Sources

If your vehicle does not have a cigarette lighter, you can still use the 12 volt battery in your car as the power source for the Shadow Tracker™. Consult your local car dealer or other professional automotive dealer for installation.

Note: If the unit does not successfully power up, refer to the trouble shooting section located at the back of this manual. The unit power cable should be unplugged when left for extended periods of time.

Removing the unit for download

Unless you are using the ATTI™ Tracker Extractor or Palm Extractor utility programs, the Shadow Tracker™ unit must be removed from your vehicle for the GPS data to be downloaded into your system. Once the memory is full, the unit will be unable to continue collecting GPS data until the memory is cleared. To remove the Shadow Tracker™ unit, disconnect the Power connector and then the GPS Antenna. Next, remove

OTHER INFORMATION

DO NOT connect any other cable or device to the DATA connector on the Shadow Tracker™ unit as damage will result. The other end of the PC Download cable connects to a standard 9-pin serial connection on your PC. If you cannot locate this connector or need an adapter then you should

Connect Data
cable



Hardwiring the Shadow Tracker Tracking unit

Direct Connect Cable (ATTI Model Number A-40254)

The Direct connect cable should be connected into the POWER connection of the unit. Next, connect the black w/ white striped wire to a 12 volt positive power source. This wire **must** have power even when the vehicle is turned OFF. Then connect the remaining black wire to a 12 volt ground source.

Shadow Tracker Pro only

Ignition Cable (ATTI Model Number A-40275)

To enable ignition switching on your Pro unit, plug the ignition cable into the ignition connector located on the back side of the Pro unit. Then connect the red wire into the vehicles ignition system. To work properly, this connection **must** be made at a place where active voltage is on **only** when the ignition is on.

Safety

- Do not place where spills can occur on the unit.
- Do not place the unit near a heating device.
- Do not place the unit in direct sunlight.
- Do not subject the unit to electrical shock.
- Do not pour liquid onto the unit.
- Do not apply any physical pressure to the unit.
- Do not place anything heavy on the unit.
- Do not leave any objects on top.
- Do not disassemble the unit or any of its components.
- Do not scratch, twist, hit or push the surface of the LED.
- Do not use the unit when temperatures are below – 40C or above 70C.
- Always use the designated AC or DC adapter provided with the unit to avoid the risk of fire or damage to this unit.
- Do not disassemble the unit or any component of the product.
- Use only power cables or antennas provided by Advanced Tracking Technologies, Inc.

Caring for the Shadow Tracker™ unit

Occasionally the Shadow Tracker™ unit needs to be cleaned. Use the following precautions.

Cleaning of the Shadow Tracker™ unit:

- Use a soft cloth to wipe the exterior.
- Do not use an alkaline detergent.
- Do not use alcohol on the unit case.
- Avoid excessive moisture when cleaning the unit.

Care of the antenna:

SPECIFICATIONS AND FEATURES

Shadow Tracker™ Jr.

<i>Height:</i>	0.98
<i>in.</i>	
<i>Width:</i>	2.00 in.
<i>Length:</i>	3.38
<i>in.</i>	
<i>Weight:</i>	
<i>Shadow Tracker™ unit</i>	2.8 oz
<i>GPS Antenna</i>	2.6 oz.
<i>DC power cord</i>	1.8 oz
<i>Current draw :</i>	120ma
<i>@ 12v</i>	
<i>Allowable voltage range:</i>	9v to
<i>18v DC</i>	
<i>Normal operating voltage:</i>	12v DC
<i>Data download rate:</i>	115K Baud
<i>On board memory:</i>	512k
<i>Operating temperature range:</i>	-20 to

Satellite Acquisition State	Time-To-First-Fix	
	Typical (minutes)	90% Probable (minutes)
Warm	0.03	0.4
Initialized	0.8	1.0
Cold	2.0	2.5
Frozen	(*)	(*)

Note that times are valid at 25 degrees Celsius with no satellite signal blockage. (*)= Frozen start is considered to be a recovery mode. An "out-of-the-box" board that has not operated for a significant amount of time (months) may approximate this state because the data in EEPROM may be valid but expired or partially complete.

SPECIFICATIONS AND FEATURES

Shadow Tracker™ Pro

<i>Height:</i>	0.98
<i>in.</i>	
<i>Width:</i>	2.00 in.
<i>Length:</i>	3.38
<i>in.</i>	
<i>Weight:</i>	
<i>Shadow Tracker™ unit</i>	2.8 oz
<i>GPS Antenna</i>	2.6 oz.
<i>DC power cord</i>	1.8 oz
<i>Current draw :</i>	120ma
<i>@ 12v</i>	
<i>Allowable voltage range:</i>	9v to
18v DC	
<i>Normal operating voltage:</i>	12v DC
<i>Data download rate:</i>	115K Baud
<i>On board memory:</i>	2 MB
<i>Operating temperature range:</i>	-40 to
70 C	
<i>Approximate data storage time:</i>	1200

Time-To-First-Fix

Satellite Acquisition State	Typical (minutes)	90% Probable (minutes)
Warm	0.03	0.4
Initialized	0.8	1.0
Cold	2.0	2.5
Frozen	(*)	(*)

Note that times are valid at 25 degrees Celsius with no satellite signal blockage. (*) = Frozen start is considered to be a recovery mode. An "out-of-the-box" board that has not operated for a significant amount of time (months) may approximate this state because the data in EEPROM may be valid but expired or partially complete.

SPECIFICATIONS AND FEATURES

Shadow Tracker™ Performer

<i>Height:</i>	1.15
in.	
<i>Width:</i>	3.4 in.
<i>Length:</i>	6.1
in.	
<i>Weight:</i>	
<i>Shadow Tracker™ unit</i>	2.8 oz
<i>GPS Antenna</i>	2.6 oz.
<i>DC power cord</i>	1.8 oz
<i>Current draw :</i>	
100ma @ 12v	
<i>Allowable voltage range:</i>	9v to
18v DC	
<i>Normal operating voltage:</i>	12v DC
<i>Data download rate:</i>	115K Baud
<i>On board memory:</i>	1 MB
<i>Operating temperature range:</i>	-40 to
70 C	
<i>Approximate data storage time:</i>	600
Hrs.	

Time-To-First-Fix

Satellite Acquisition State	Time-To-First-Fix	
	Typical (minutes)	90% Probable (minutes)
Warm	0.03	0.4
Initialized	0.8	1.0
Cold	2.0	2.5
Frozen	(*)	(*)

Note that times are valid at 25 degrees Celsius with no satellite signal blockage. (*)= Frozen start is considered to be a recovery mode. An "out-of-the-box" board that has not operated for a significant amount of time (months) may approximate this state because the data in EEPROM may be valid but expired or partially complete.

Problem	Action
Unit LED does not light Red or Green.	<ul style="list-style-type: none">● Make sure the plug is properly connected to the back of the unit.● Make sure the plug is properly connected into the cigarette lighter in the vehicle.● Check the fuse for the cigarette lighter in your vehicle.● Check fuse in the end of the DC power cord.
Status indicator LED will not turn green. Unit does not receive signal.	<ul style="list-style-type: none">● Check antenna connection.● Make sure the antenna cable is not crimped or cut.● Reposition the antenna.

Shadow Tracker™ Jr., Pro, Performer

Hardware Manual

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