



HUD GPS Speed Meter with Bluetooth

By MTK Chipset

HG-100



HUDGPS User Manual

Rev.A00

Precaution

- ◆ GPS is possessed and maintained by USA DOD (Department Of Defense), which has the absolute right to degrade the GPS signal without alert in advance.
- ◆ GPS Signal reception will be certainly effected if you are inside building, tunnel and extreme urban environment. In these cases, it doesn't mean that the device is defective
- ◆ Drive safety always has to be the first priority while using this device.
- ◆ For safety, don't operate this device while driving. Start to drive after everything is set well.
- ◆ Please use the qualified car charger only which is packed inside accessories box.
- ◆ Please return defective one to your dealer or agent. Personal disassemble or repair is not permitted and guaranteed.



HUDGPS User Manual

Rev.A00

Chapter 1 Product Introduction

1.1 Description

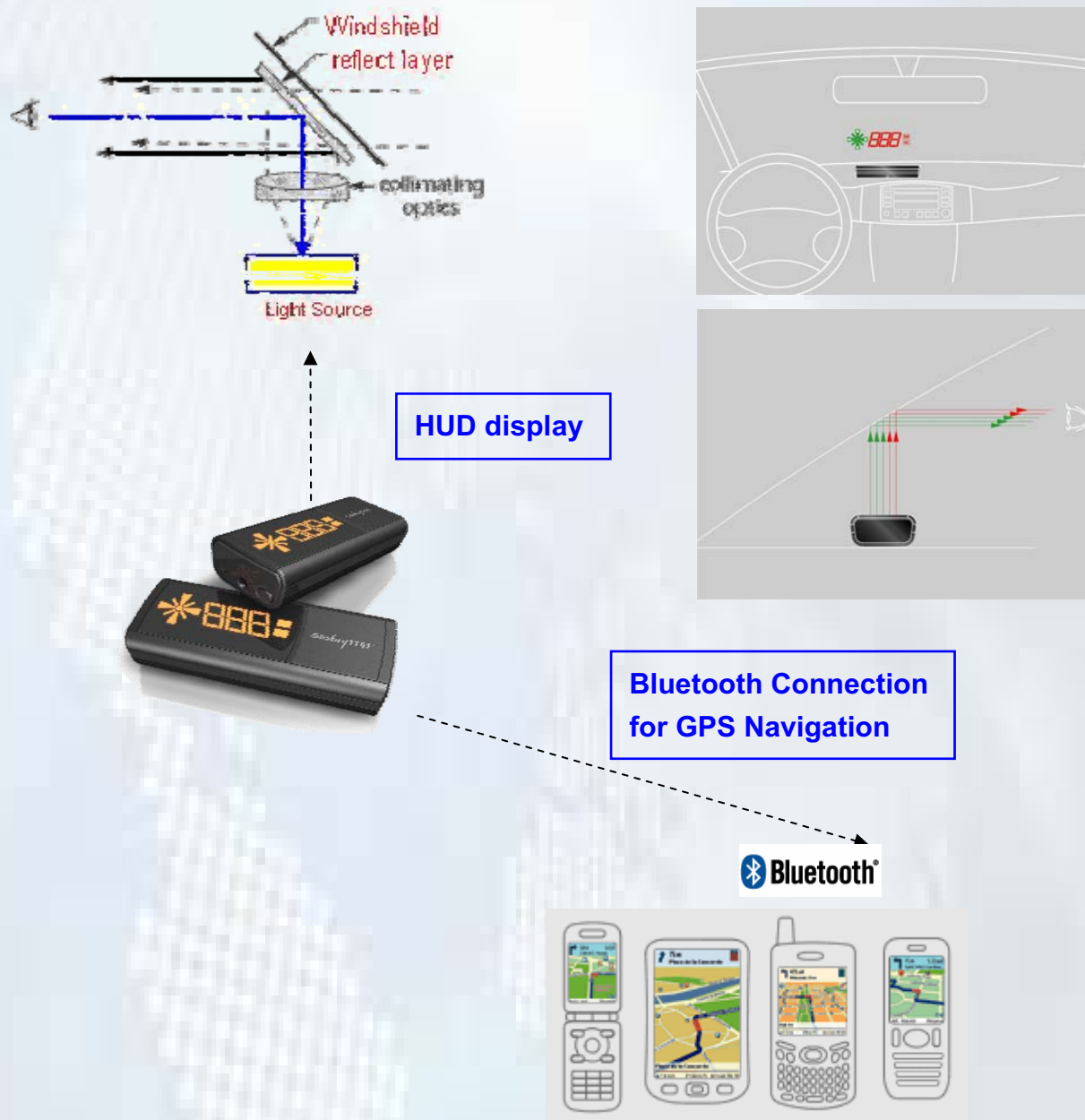
GlobalTop Technology Inc. is proud to present you the most innovative GPS application product, **HUD GPS Speed Meter with Bluetooth, HG-100**. HG-100 is combined with the three exciting modern technology, Heads-Up Display (HUD), GPS, and Bluetooth. With HUD, the car information of car heading and speed are being projected onto the windshield window which is ahead of driver and drivers can keep their eyes on the road and enjoy the fun of driving. HG-100 has also the Over-Speed Alert function to remind drivers with condition of vehicles in real time. The GPS technology, based on MediaTek Inc. architecture, the world's leading digital media IC solution provider, is providing the 32 channel all-in-view satellite tracking, 5Hz update rate function to show the most detail position fix and bring drivers enjoying the feeling of speed. HG-100 also has the Bluetooth interface function, compliant with Bluetooth V2.0, works with PDA, Smart Phone and laptop computer and is compatible with all navigation software.

HG-100 is going to re-define the meaning of Bluetooth GPS receiver and going to be the driving force of GPS innovation.

1.2 Electrical Characteristics

Protocol	NMEA 0183 v3.01 (Default : GGA,GSA,GSV,RMC,VTG) MTK NMEA Command
Baud Rate	38400,N,8,1 (Default)
Update Rate	5 Hz
Datum	WGS84
Channel	32-channel satellites all-in-view tracking
Frequency	L1, 1575.42MHz
Hot Start	1 sec. (Average)
Warm Start	34 sec. (Average)
Cold Start	36 sec. (Average)
Reacquisition Time	Less than 1 sec (Typical)
Position Accuracy	< 3m CEP (50%) without SA (Horizontal)
Sensitivity	Tracking : -158 dBm
Power Supply	DC 5V
Power Consumption	100mA(Average)
Battery Life	7~9 HRs with rechargeable Li-Ion Battery
Antenna Type	Built-in low noise patch antenna
Bluetooth	Class 2, distance up to 10 meters
Dimension	104.08(W)x20(L)x41.06(H) mm
LED Indicator	Red LED : GPS is fixed or not fixed / Power On Green LED : Battery Indicator Blue LED : Bluetooth is connected or not connected
Operating Temperature	-10°C to + 70°C
Storage Temperature	-40°C to + 85°C
Operation Humidity	5%~95%, Non-Condensing
HUD function	Vehicle Speed, Heading, Speed Warning
Availability of HUD	Plug-in Car charger

1.3 System Operating Chart



1.4 Product Appearance



1	Direction Indicator	Indicate the direction of the moving vehicles
2	Light Sensor	Automatic change the brightness of the LEDs
3	Speed Indicator	Indicate the speed of the moving vehicles for 1~999
4	Speed Unit	Indicate the speed unit, kilometer/hour and mile/hour



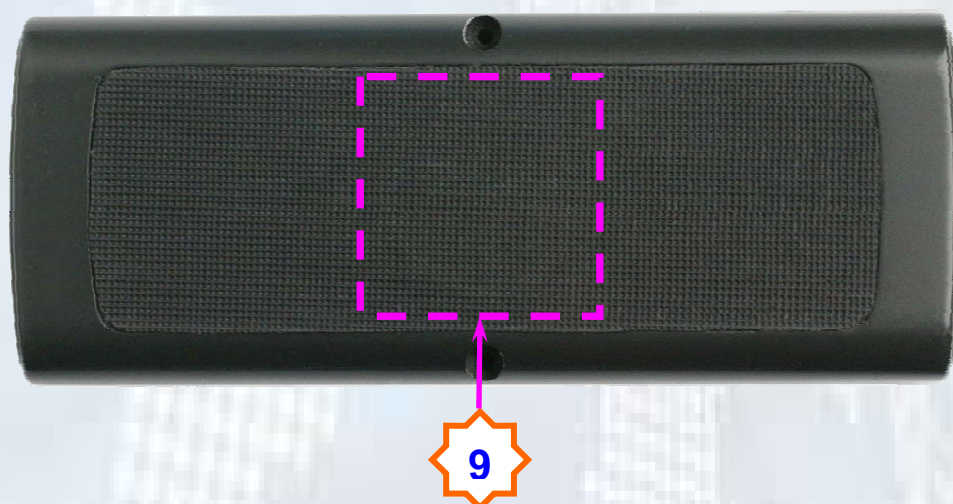
HUDGPS User Manual

Rev.A00

5	Function Touch	Function switch for speed unit and speed warning system
6	Power inlet	Car charger power input
7	Power Button	Power ON/OFF, HUD Off (power saving mode)



8	LED Indicator	Red LED : GPS is fixed or not fixed / Power On Green LED : Battery Indicator Blue LED : Bluetooth is connected or not connected
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9	Permanent Magnet	The location of permanent magnet
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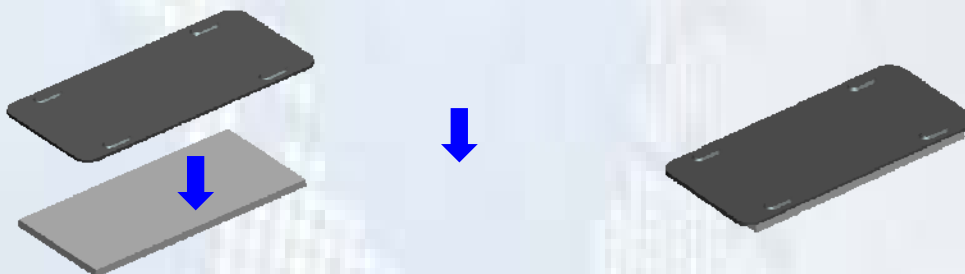
1.4 Quick Hardware Installation

A. Paste the heat insulation film

1. Please find the most suitable position of the heat insulation film on the windshield window to get the best projecting angle. It is recommended to put the heat insulation film on the left under corner of the windshield window.
2. Remove the backside film of the heat insulation film and apply to the choosing position on last step. Gently smoothing this film onto windshield to avoid bubbling generated.(Note: regular process will be recommended to apply one thin layer of soap mixed water on the side which to stick onto windshield and get rid of bubble)
3. Paste the heat insulation film on the windshield window and adjust the position to the suitable place.
4. Use the smooth slab to remove the bubbles of the heat insulation film.
5. Remove the surplus soap water.

B. Fix the HG-100

1. Remove the backside film of the rubber film and stick it on the iron plate.



2. Put the iron plate below the heat insulation film. Check the image of the iron plate is projected to the area of the heat insulation film.
3. Put HG-100 on the iron plate and check the projecting area is in the heat insulation film to get the most comfortable view angle.



4. Remove the other backside film of the rubber film and stick it.

C. Starting the HG-100

HUDGPS User Manual

Rev.A00

1. Starting your car and plug in the car charger to the HG-100.
2. Press the power button of the HG-100 last 2 seconds.
3. Put the HG-100 on the iron plate and it will be magnetic fixed on the plate.
4. HG-100 will show "GPS" until get position fixed.
5. In the open sky, the HG-100 will get fixed under 1 minute.
6. After GPS position fixed, the HG-100 will project the heading and speed of drive information.



Chapter 2 Basic Operation Instruction

2.1 Note before Use

The HUD function of HG-100 is only activated with the car charger plug-in. But without car charger plug-in, the GPS and Bluetooth function still remain. Keep HG-100 embedded battery charged firstly at least 1 hrs.

Just press Power button ON, HG-100 will start GPS signal searching automatically without any other setting. Strongly recommend you doing the first time GPS position fix outdoor (free of sky obstruction) for better level of GPS signal reception and keep stayed 10~15 min for satellite constellation update.

2.2 Machine ON/OFF

Press the Power Button to start HG-100.



Power ON

2 sec button pressed
HUD will light on in 1 sec

Power button

Power Off

Machine shuts down automatically
with button 2 sec pressed.

HUD OFF

For some certain purposes or driving considerations, you may switch off the screen with button 1 sec pressed and the GPS still working.

HUD ON

HUD recovery will be obtained by pressing the button 1 sec again.

Note : The HUD function is only activated with the car charger plug-in.

2.3 Speed Unit switch between km/h, mile/h

Press Function Touch button to switch km/h and mile/h.



Function Touch button

Speed Unit indicate

1 sec button pressed
HUD will show the setting of speed unit.



Speed Unit Switch

0.5 sec button pressed
HUD will change km/h and mile/h every time.

Speed Unit Set

1 sec button pressed
HG-100 will keep the speed unit.

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2.4 Speed Warning Function

Press Function Touch button to set the speed warning.



Function Touch button

Speed Warning indicate

2 sec button pressed
HUD will show the setting of speed warning.

Speed Warning Switch

1 sec button pressed
HUD will change the setting of speed warning as a loop.

	Setting Loop
Km/h	OFF, 40, 50, 60, 70, 80, 90, 100, 110, 120, 140, 160, 180, 200
Mile/h	OFF, 30, 40, 50, 60, 65, 70, 75, 80, 90, 100, 110, 120, 130



Speed Warning Set

2 sec button pressed
HG-100 will keep the setting of Speed Warning.

2.5 HG-100 Light Indicate



LED Indicator	Red LED : GPS is fixed or not fixed / Power On
	Green LED : Battery Indicator
	Blue LED : Bluetooth is connected or not connected

Symbol	Color	Behavior	Description
Bluetooth Indicator	<u>Blue</u>	Blinking in 3 pulses/sec	Searching for Bluetooth host
		Blinking in 1 pulse/sec	Connected with host& communicating
Power/GPS Acquisition LED (Red/Green combined)	<u>Green</u>	Blinking with 3 sec interval	Battery low
	<u>Green</u>	Blinking with 2 sec interval	Charging
	<u>Green</u>	Light up	Charge completed (LED off when cable away)
	<u>Red</u>	Light up continuously	Positioning
	<u>Red</u>	Blink in 1pulse/ 3secs	Position fixed

2.6 HG-100 Button Function

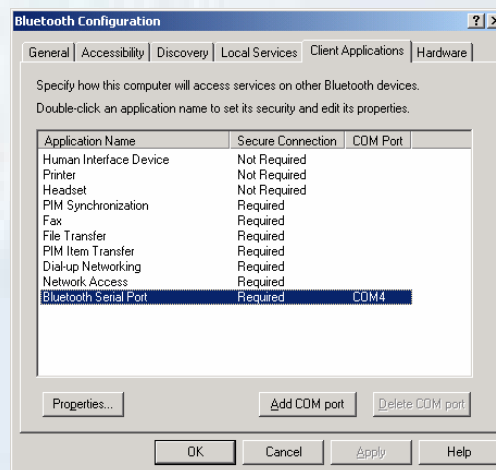
Power Button	<u>Power ON/OFF and Screen ON/OFF</u>	
	Press 2 seconds	Power ON and OFF
	Press 1 second	When power on, HG-100 will switch on and off the screen
Function Touch	<u>Speed Unit Mode</u>	
	Press 1 second	HG-100 will into the speed unit mode.
	Press 0.5 second	When in the speed unit mode, HG-100 will change the speed unit indicator.
	<u>Speed Warning Setting Mode</u>	
	Press 2 seconds	HG-100 will into the speed warning setting mode.
	Press 1 second	When in the speed warning mode, HG-100 will change the speed warning setting.
	Press 2 seconds	When in the speed warning mode, HG-100 will keep the setting and leave the speed warning mode.

Chapter 3 Bluetooth Connection

3.1 Configuration setup with PC connection

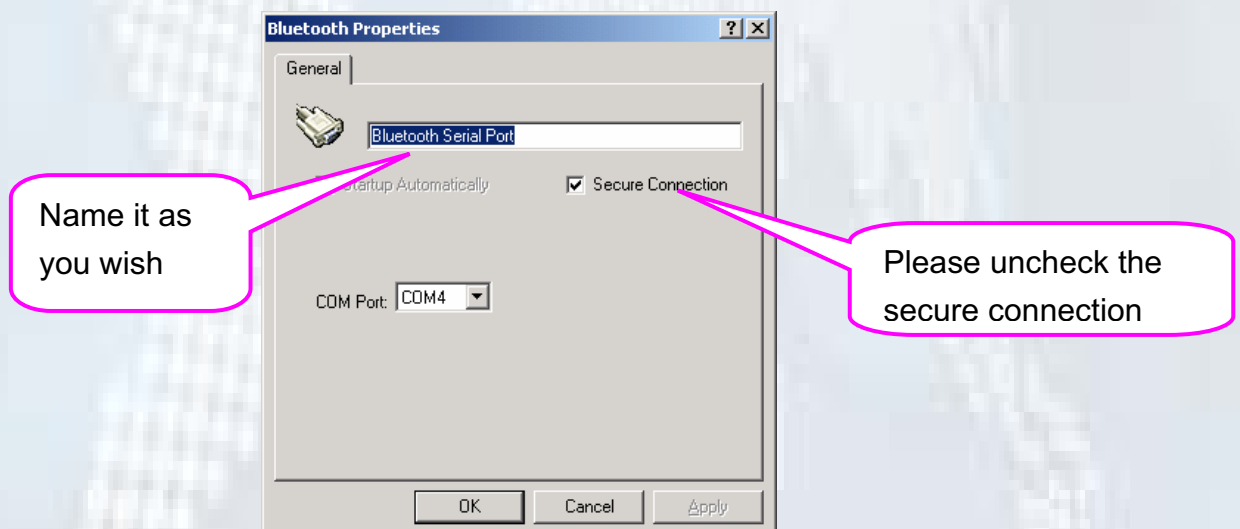
Here is a sample to show you how to connect the HG-100 with your PC, software install and basic function test.

- 1) First, select a PC with Bluetooth interface. Or you can purchase Bluetooth adapter for your PC. Please contact with your PC's sales about this.
- 2) Check your Bluetooth manager if there exist any configuration of Bluetooth Serial Port Profile like this :



Note: this sample is for your reference only. The screen may be various between different models of Bluetooth manager software.

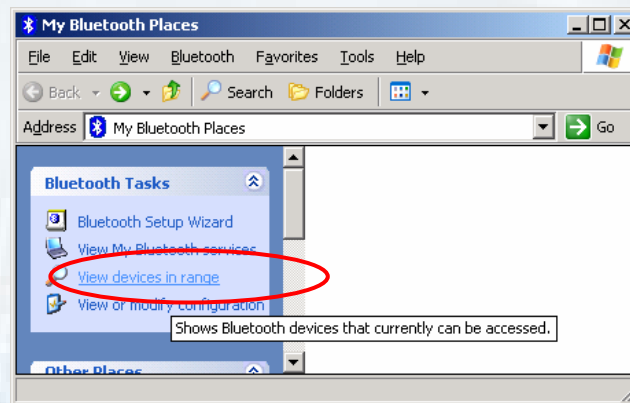
- 3) If not found, please create a Bluetooth serial port by yourself. The configuration should be like this:



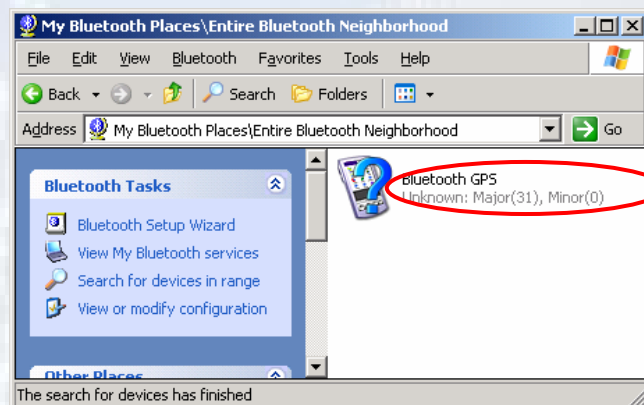
HUDGPS User Manual

Rev.A00

- 4) If there is already one, please check the content. Some Bluetooth device will enable the secure connection. Please refer to the configuration as above to uncheck it.
- 5) Power on HG-100. If the battery is ready, you should see 2 LED light up : the blue LED blink 3 times/sec means Bluetooth is activated and waiting for connection. Another static red LED shows the GPS module is started and is inquiring position information.
- 6) Open your Bluetooth places ; you should see nothing while using firstly.



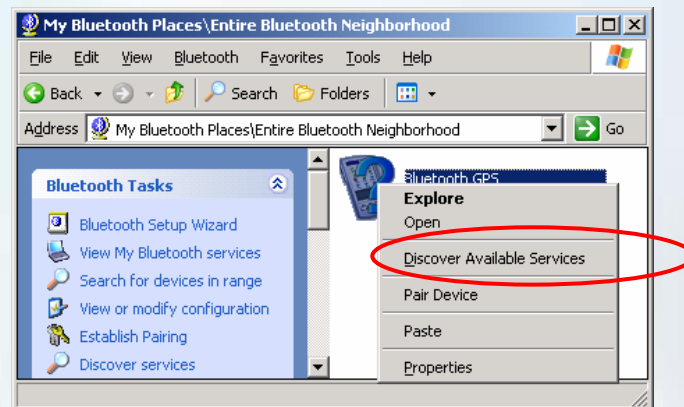
- 7) Click the [View devices in range] and you should find a [HUDGPS] show as below:



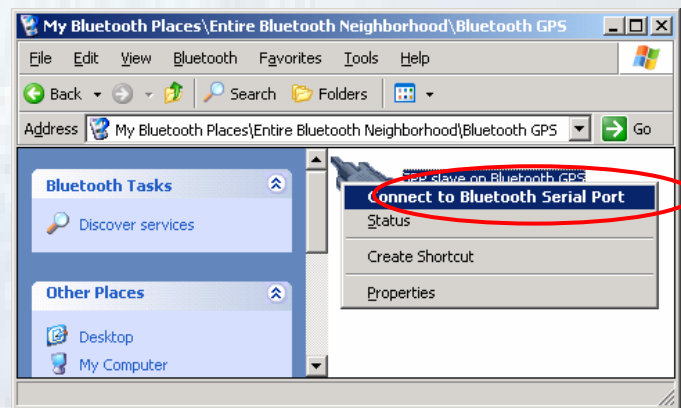
- 8) Right click on the icon, select the [Discover Available Services]:

HUDGPS User Manual

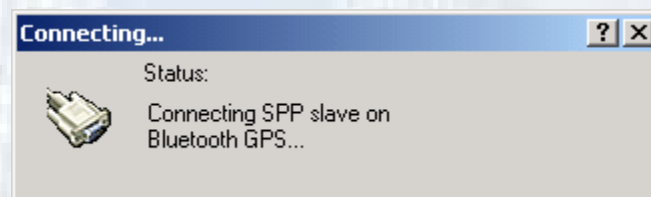
Rev.A00



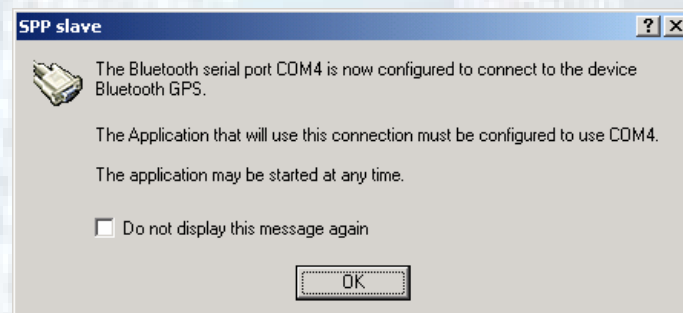
9) You should find the service SPP slave, right click and select [Connect to Bluetooth Serial Port]:



10) The follow message will show:



11) And the connection successful message:

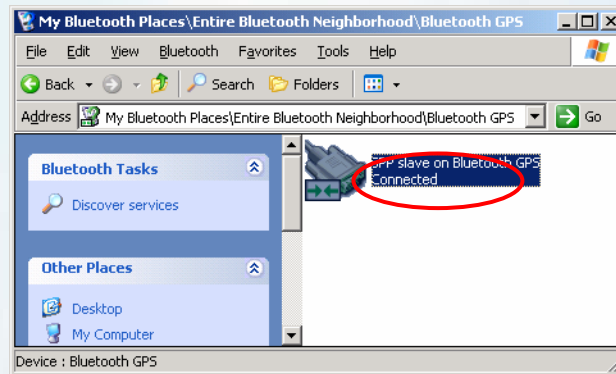


12) Back to the Bluetooth service view, you should see the icon changed to

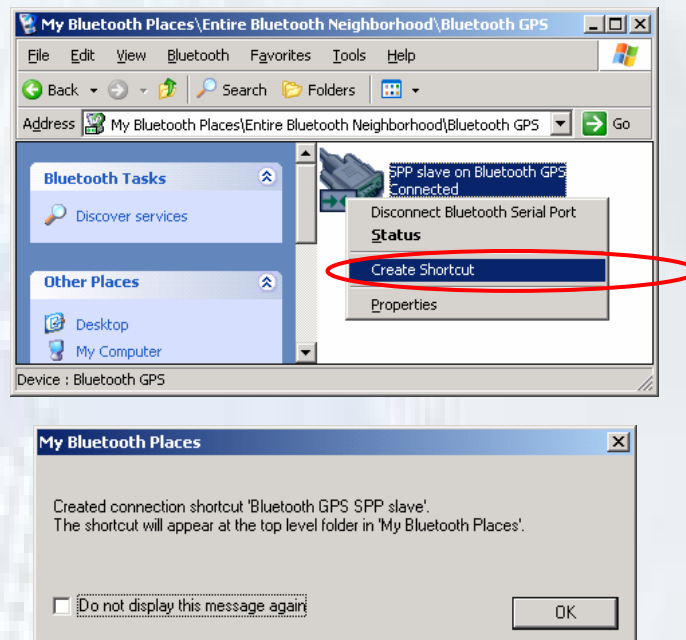
HUDGPS User Manual

Rev.A00

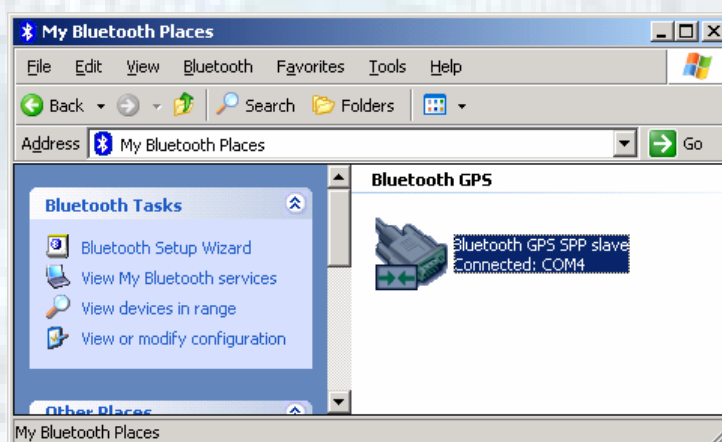
[Connected]:



13) If you wish to use the connection more easily next time, you can create a shortcut for this :



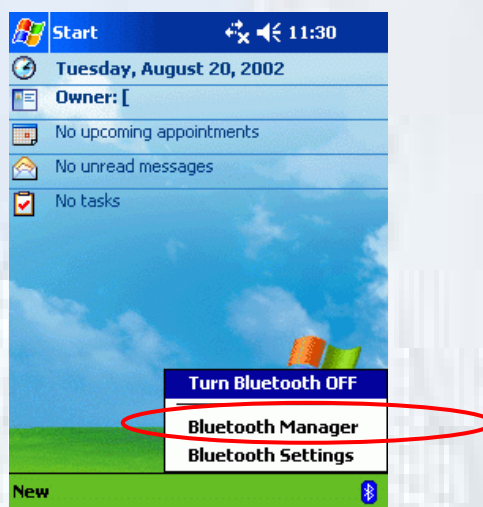
14) You will see the shortcut you just created:



3.2 Configuration setup with PDA connection

Following will show how to configure the Bluetooth connection on PDA. It may be different from other PDA models.

- 1) Power on your PDA and the Bluetooth host.
- 2) Power on HG-100. If the battery is ready, you should see 2 LEDs indication : the blue for Bluetooth blinks 3 times/sec. It means the Bluetooth module is activated and waiting for connection. The red LED for GPS, means the GPS module is activated and is inquiring GPS signal.
- 3) See the screen, click Bluetooth mark at bottom, and [Bluetooth Manager] as below:



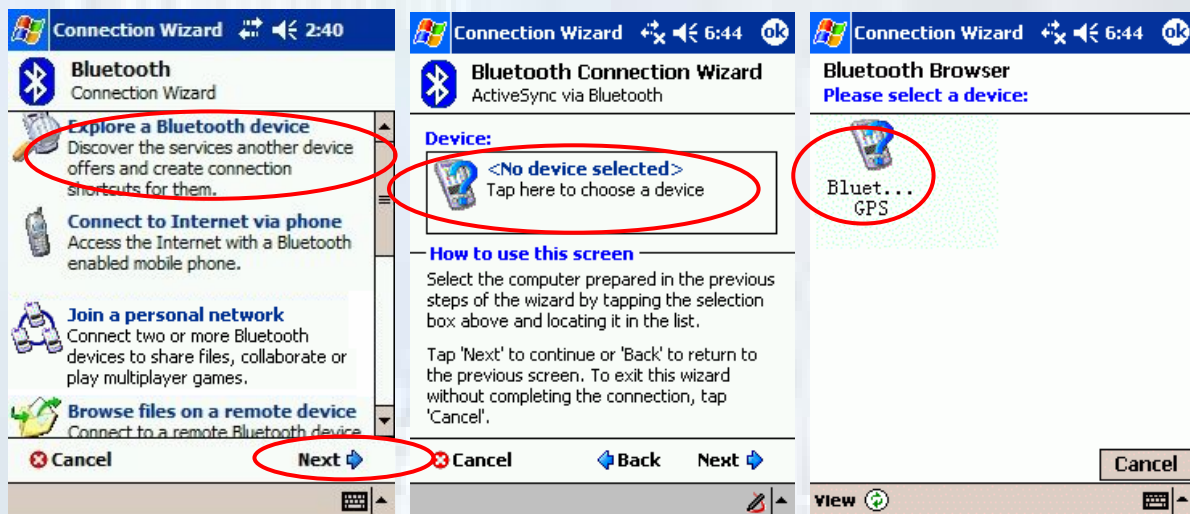
- 4) If this is your first time to use Bluetooth GPS, click the Bluetooth mark at the bottom as below:

HUDGPS User Manual

Rev.A00



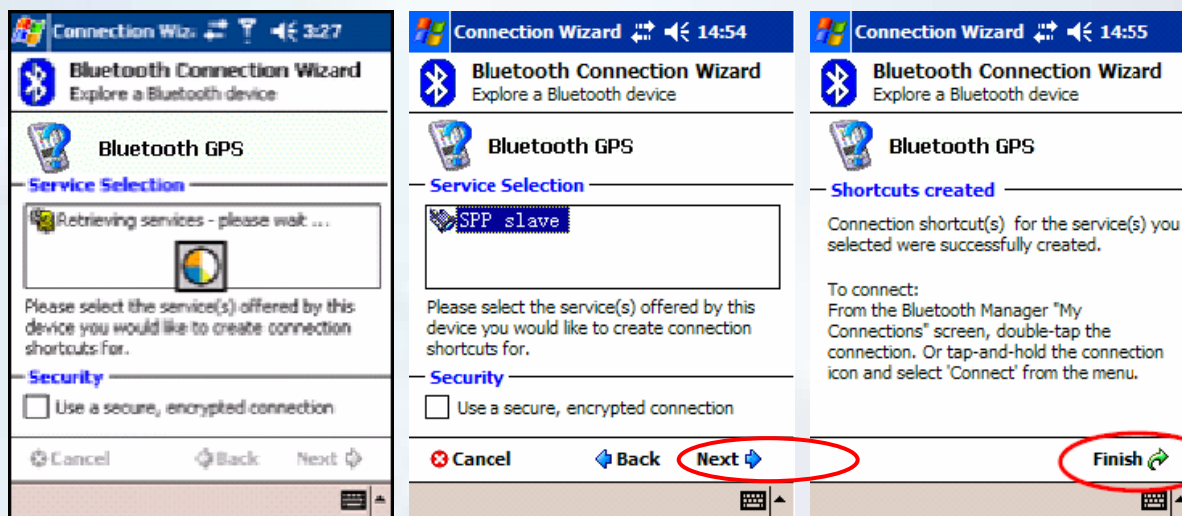
- 5) Then the Bluetooth connection wizard show up, select [Explore a Bluetooth device] and click [Next]. In the next page, click the box to search Bluetooth devices. Your PDA will find the Bluetooth GPS and show it in the window. Click the icon to search for service.



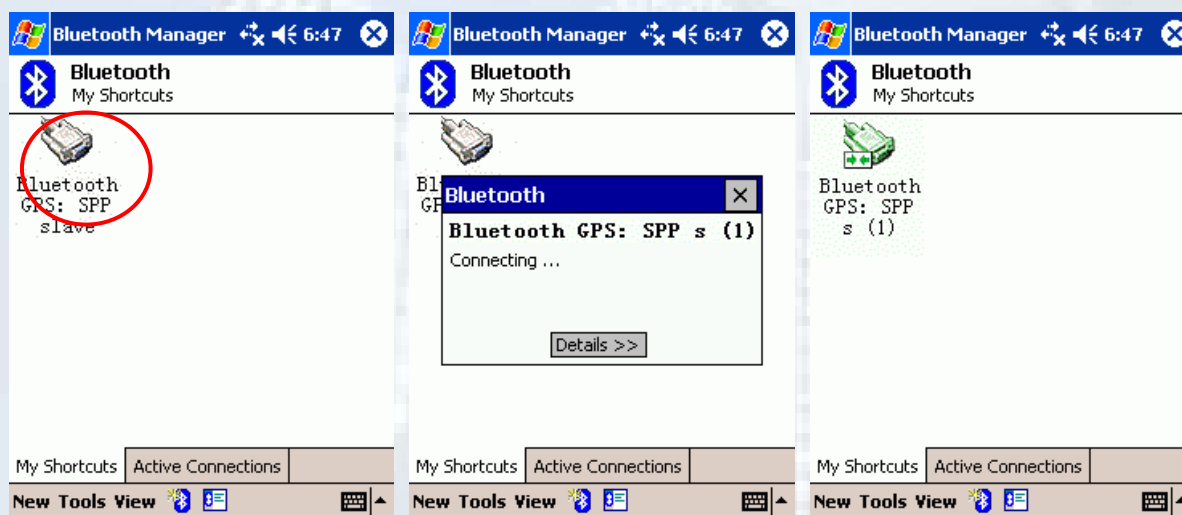
- 6) Back to the [Explore a Bluetooth device] as below. Click [Next] to list service on Bluetooth GPS. [SPP slave] should appear in the service list box, click it and click [Next] to finish shortcut creation. Don't forget to uncheck the secure connection box.

HUDGPS User Manual

Rev.A00



- 7) Back to the main screen of [Bluetooth manager] as below. Please double-click the icon to connect the Bluetooth GPS Receiver . If connection successful, a green arrow will show as below at right.



- 8) You may start to use any map/navigation software and use the GPS function now.

Appendix A. Warranty

HG-100 with one-year warranty is except these cases, like abnormal use, natural disaster, accident damage and un-authorized repairing, etc.

- High temperature environment should be avoided.

One year warranty is not included under the following conditions :

- Damages caused by natural disaster, accidents etc.
- Abnormal operating, not follow manual instruction
- Unauthorized repairing found
- Damages caused by un-recognized parts.
- Out of warranty

Necessary RMA and recovery cost will be charged for cases described above.

Appendix B. Trouble Shooting

Problem of Setup

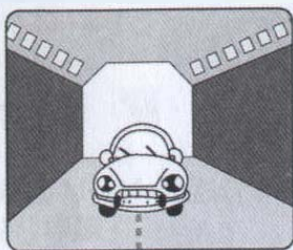
<i>Error/Problem</i>	<i>Cause</i>	<i>Trouble shooting</i>
Can not find the GPS device through Bluetooth interface	Install not correct or battery low	Check if HG-100 is installed properly, and confirm the battery level is suitable (green LED blinks or none LED)
Unable the connect through Bluetooth	Configuration incorrect	Please re-install or refer to your PDA's user manual for configuration.
Fail to open COM Port	Bluetooth manager is not configured properly, or the COM port is adopted by another software.	Please check your Bluetooth manager settings, close the software may use COM ports and try again. Or check if there is any password protection.
No NMEA code (GPS data flow)	(1) Some PC/PDA will enter the power saving mode if you stop input for a few minutes. Bluetooth interface will be reset in such case. (2) Wrong baud rate or com port setting	(1) Disable the power saving mode, try to connect GPS receiver again. (2) Correct with right baud rate & com port
Unstable GPS signal	(1) Degrade by anti-sunlight film with receiver placed inside car (2) Some cases described in sec7.2	Plug External antenna and place on car roof
Poor GPS signal	(1) Storm effect (2) Atmosphere turbulences (3) SA ON by USA military.	NA

Concerning of Poor GPS Signal

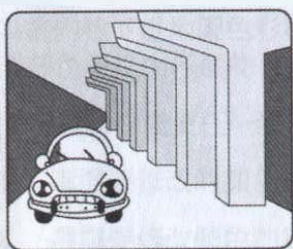
It is possible unable to receive GPS signal or signal low in these places:

HUDGPS User Manual

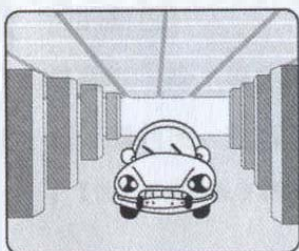
Rev.A00



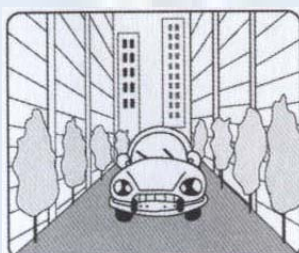
- Inside the tunnel, GPS signal is blocked.



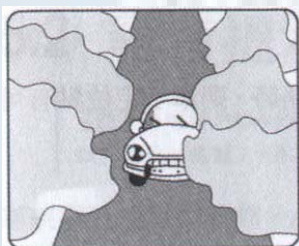
- Covers above, GPS signal is blocked.



- Inside buildings, GPS signal is blocked.



- Beside some buildings, GPS signal is disturbed.



- Inside forests, or too many covers, GPS signal is disturbed.

- If you use HG-100 inside the car, some anti-sunlight windscreen film will make the GPS signal degraded or signal blank.
- GPS satellite is owned by America military; sometimes they will tune-down the accuracy by some reason. In such cases, the GPS position may not fixed exactly.



HUDGPS User Manual

Rev.A00

FCC Caution

1. The device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:
 - (1) This device may not cause harmful interference.
 - (2) This device must accept any interference received, including interference that may cause undesired operation.
2. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
3. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.