

GPS

HI-204III-USB

**Ultra High Sensitive
USB GPS Receiver**

USER Manual



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HI-204III-USB
WATERPROOF
Ultra High Sensitive
USB GPS Receiver





General description of what GPS is and how it works.

GPS (Global Positioning System) is the only system today able to show you your exact position on the Earth anytime, in any weather, anywhere. GPS satellites, 24 in all, orbit at 11,000 nautical miles above the Earth. They are continuously monitored by ground stations located worldwide. The satellites transmit signals that can be detected by anyone with a GPS receiver. Using the receiver, you can determine your location with great precision.

The satellites are positioned so that we can receive signals from six of them nearly 100 percent of the time at any point on Earth. You need that many signals to get the best position information. Satellites are equipped with very precise clocks that keep accurate time to within three nanoseconds- that's 0.000000003, or three billionths of a second. This precision timing is important because the receiver must determine exactly how long it takes for signals to travel from each GPS satellite. The receiver uses this information to calculate its position.





Although GPS was designed for military use, many thousands of civilians make use of it. The satellites actually broadcast two signals, one is only for military use, and the other can be used by both military and civilians. Since GPS is passive (you only need to receive the signal), there are no restrictions on who can use the signal available to civilians.

GPS technology can be used in a variety of fields besides providing navigation for vehicles on the sea, in the air and on the ground. GPS applications also include keeping track of where a fleet of trucks, trains, ships or planes are and how fast they are moving; directing emergency vehicles to the scene of an accident; mapping where a city's assets are located ; and providing precise timing for endeavors that require large-scale coordination.





1. HI-204III-USB Series Introductions

HI-204III-USB is a GPS receiver with USB interfaces and built-in active antenna for high sensitivity to tracking signal. HI-204III-USB is well suited to system integration and users who use any kinds LaptopPC. It satisfies a wide variety of applications for car navigation, personal navigation or touring devices, tracking and marine navigation purpose. Users can simply plug it into a LaptopPC running with suitable mapping and routing software for navigation.

1.1 Standard Package

Before you start up, make sure that your package includes the following items. If any items are missing or damaged, contact your dealer immediately.

- HI-204III-USB GPS Receiver unit
- Suction CUP
- User Manual CD
(including User Manual, HaiTest Testing Program)



USB port



For notebook PC use:

HI-204III-USB connect with a LaptopPC USB port.





SECTION 1

INTRODUCTION

1.1 OVERVIEW

Fast Acquisition Enhanced Sensitivity
20 Channels “All-In-View” Tracking GPS Sensor Module

The receiver continuously tracks all satellites in view and provides accurate satellite positioning data.

The HI-204III-USB is optimized for applications requiring good performance, low cost, and maximum flexibility; suitable for a wide range of OEM configurations including handhelds, sensors, asset tracking, PDA-centric personal navigation system, and vehicle navigation products.

Its 20 parallel channels and 4000 search bins provide fast satellite signal acquisition and short startup time. Tracking sensitivity of -159dBm offers good navigation performance even in urban canyons having limited sky view.

Satellite-based augmentation systems, such as WAAS and EGNOS, are supported to yield improved accuracy.





1.2 Features

- 20 parallel channel GPS receiver
- 4000 simultaneous time-frequency search bins
- SBAS (WAAS, EGNOS) support
- -159dBm tracking sensitivity
- < 8 second hot start
- < 40 second cold start





SECTION 2

RECEIVER OPERATION

Upon power up, after initial self-test has completed, the HI-204III-USB will begin satellite acquisition and tracking process. Under normal open-sky condition, position-fix can be achieved within approximately 35 seconds (within 10 seconds if valid ephemeris data is already collected from recent use). After receiver position has been calculated, valid position, velocity and time information are transmitted through the on board serial interface.

The receiver uses the latest stored position, satellite data, and current RTC time to achieve rapid GPS signal acquisition and fast TTFF. If the receiver is transported over a large distance across the globe, cold-start automatic-locate sequence is invoked. The first position fix may take up to 50 sec searching the sky for the GPS signal. The acquisition performance can be improved significantly if the host initializes the receiver with a rough estimate of time and user position.





As soon as GPS signal is acquired and tracked, the HI-204III-USB will transmit valid navigation information through its serial interface. The navigation data contains following information:

- Receiver position in latitude, longitude, and altitude
- Receiver velocity
- Time
- DOP error-magnification factor
- GPS signal tracking status

The HI-204III-USB will perform 3D navigation when four or more satellites are tracked. When three or fewer satellites are tracked, altitude-hold is enabled using the last computed altitude and 2D navigation mode is entered.

With signal blockage or rising and setting of the satellites, where a change in satellite constellation used for position fix occurred, large position error may result. The HI-204III-USB incorporates a proprietary algorithm to compensate the effect of satellite constellation change, and maintains an accurate smooth estimate of the receiver position, velocity, and heading.





2. Technical Specifications

2.1. Electrical Characteristics

	Items	Description
Chipset	GSP3F	SiRF StarIII technology
General	Frequency	L1, 1575.42 MHz
	C/A code	1.023 MHz chip rate
	Channels	20
Accuracy	Position	10 meters, 2D RMS
		5 meters 2D RMS, WAAS corrected
		<5meters(50%), DGPS corrected
	Velocity	0.1 meters/second
	Time	1 microsecond synchronized to GPS time
Datum	Default	WGS-84
	Other	selectable for other Datum
Acquisition	Reacquisition	0.1 sec., average
Rate (Open Sky & Stationary Requirements)	Snap start	1 sec., average
	Hot start	8 sec., average
	Warm start	38 sec., average
	Cold start	42 sec., average
Dynamic Conditions	Altitude	18,000 meters (60,000 feet) max.
	Velocity	515 meters/second (1000 knots) max.
	Acceleration	4g, max.
	Jerk	20 meters/second ³ , max.
Power	Main power input	5V DC input.
	Power consumption	≈ 0.38 W (continuous mode)
	Supply Current	≈ 75mA
	Backup power	3 V Lithium-Ion rechargeable battery
Dimension	43mm L x 42mm W x 13mm H	
Weight	23g	





2.2 LED INDICATOR

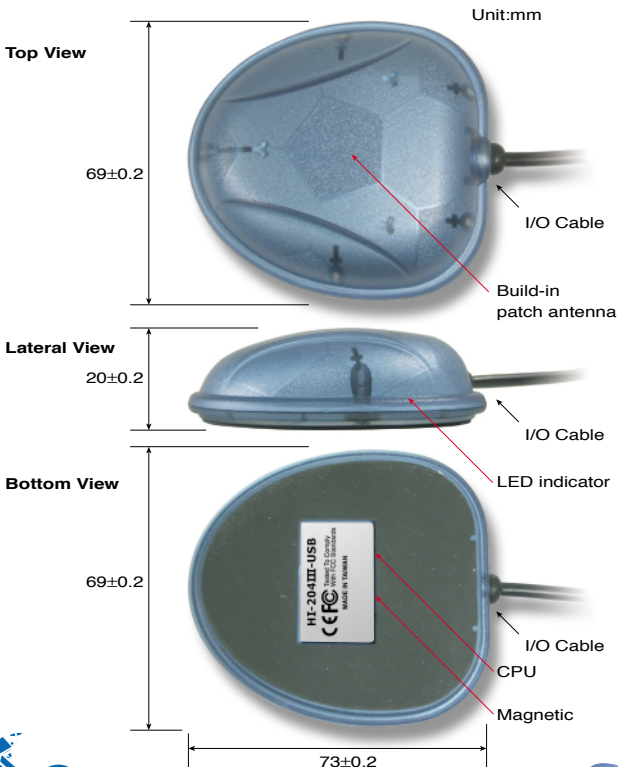
LED flashing 0.25Hz	Signal Searching
LED flashing 1Hz	Position Fixed





SECTION 3 HARDWARE INTERFACE

3.1 MECHANICAL DIMENSIONS





3.2 ONE-PULSE-PER-SECOND (1PPS) OUTPUT

The one-pulse-per-second output is provided for applications requiring precise timing measurements. The output pulse is 1usec in duration. Rising edge of the output pulse is accurate to $\pm 1\text{usec}$ with respect to the start of each GPS second. Accuracy of the one-pulse-per-second output is maintained only when the GPS receiver has valid position fix.

The 1PPS output is always generated when the GPS receiver is powered-on. Proper adjustment of the 1PPS output to align with the GPS second requires calculation of the receiver clock offset and clock drift-rate as part of the position-velocity-time (PVT) solution. When enough satellite signals are received to generate valid position fixes, the 1PPS output is adjusted to align with the GPS second in several seconds. When the 1PPS output is brought in sync with the GPS second, the 1PPS Valid Signal on the I/O pin becomes active (HIGH); when the 1PPS output is not yet in sync with the GPS second, the 1PPS Valid Signal remains inactive (LOW).





As long as enough satellite signals are received to generate valid position fixes, the 1PPS output remains synchronized to the GPS second, and the 1PPS Valid Signal remains active. If signal blockage prevents the receiver from generating valid position fix, the 1PPS output will drift away from the GPS second and the 1PPS Valid Signal will become inactive. Upon re-acquiring enough satellites to generate consecutive valid position fixes, the 1PPS Valid Signal will become active again, signaling that the 1PPS output is again synchronized with the GPS second.

For best stable operation of the 1PPS signal, it is to be operated in static environment having clear view of the sky.





SECTION 4

SOFTWARE INTERFACE

This section describes the details of the serial port commands through which the HI-204III-USB is controlled and monitored. The serial port commands allow users to set the receiver parameters, configure output message type, and retrieve status information. The baud rate and protocol of the host COM port must match the baud rate and protocol of the GPS receiver serial port for commands and data to be successfully transmitted and received. The default receiver protocol is 4800 bps, 8 data bits, 1 stop bit, and none parity.

4.1 NMEA OUTPUT MESSAGE SPECIFICATION

The HI-204III-USB supports NMEA-0183 output format as defined by the National Marine Electronics Association (<http://www.nmea.org>). The currently supported NMEA messages for GPS applications are:

- GGA** Global Positioning System Fix Data
- GLL** Geographic Position Latitude / Longitude
- GSA** GNSS DOP and Active Satellites
- GSV** GNSS Satellites in View
- RMC** Recommended Minimum Specific GNSS Data
- VTG** Course Over Ground and Ground Speed



4.1.1 NMEA Messages

The serial interface protocol is based on the National Marine Electronics Association's NMEA 0183 ASCII interface specification. This standard is fully define in "NMEA 0183, Version 3.01" The standard may be obtained from NMEA, www.nmea.org

4.1.2 GGA - GPS FIX DATA

Time, position and position-fix related data (number of satellites in use, HDOP, etc.).

Format:

\$GPGGA,<1>,<2>,<3>,<4>,<5>,<6>,<7>,<8>,<9>,
M,<10>,M,<11>,<12>,*<13><CR><LF>

Example:

\$GPGGA,104549.04,2447.2038,N,12100.4990,E,1,06,
01.7,00078.8,M,0016.3,M,*,*5C<CR><LF>





Field	Example	Description
1	104549.04	UTC time in hhmmss.ss format, 000000.00 ~ 235959.99
2	2447.2038	Latitude in ddmm.mmmm format Leading zeros transmitted
3	N	Latitude hemisphere indicator, 'N' = North, 'S' = South
4	12100.4990	Longitude in dddmm.mmmm format Leading zeros transmitted
5	E	Longitude hemisphere indicator, 'E' = East, 'W' = West
6	1	Position fix quality indicator 0: position fix unavailable 1: valid position fix, SPS mode 2: valid position fix, differential GPS mode
7	06	Number of satellites in use, 00 ~ 12
8	01.7	Horizontal dilution of precision, 00.0 ~ 99.9
9	00078.8	Antenna height above/below mean sea level, -9999.9 ~ 17999.9
10	0016.3	Geoidal height, -999.9 ~ 9999.9
11		Age of DGPS data since last valid RTCM transmission in xxx format (seconds) NULL when DGPS not used
12		Differential reference station ID, 0000 ~ 1023 NULL when DGPS not used
13	5C	Checksum

Note: The checksum field starts with a '*' and consists of 2 characters representing a hex number. The checksum is the exclusive OR of all characters between '\$' and '*'.





4.1.3 GLL - LATITUDE AND LONGITUDE, WITH TIME OF POSITION FIX AND STATUS

Latitude and longitude of current position, time, and status.

Format:

\$GPGLL,<1>,<2>,<3>,<4>,<5>,<6>,<7>*<8><CR><LF>

Example:

\$GPGLL,2447.2073,N,12100.5022,E,104548.04,A,
A*65<CR><LF>





Field	Example	Description
1	2447.2073	Latitude in ddmm.mmmm format Leading zeros transmitted
2	N	Latitude hemisphere indicator, 'N' = North, 'S' = South
3	12100.5022	Longitude in dddmm.mmmm format Leading zeros transmitted
4	E	Longitude hemisphere indicator, 'E' = East, 'W' = West
5	104548.04	UTC time in hhmmss.ss format, 000000.00 ~ 235959.99
6	A	Status, 'A' = valid position, 'V' = navigation receiver warning
7	A	Mode indicator 'N' = Data invalid 'D' = Differential 'A' = Autonomous 'E' = Estimated
8	65	Checksum





4.1.4 GSA - GPS DOP AND ACTIVE SATELLITES

GPS receiver operating mode, satellites used for navigation, and DOP values.

Format:

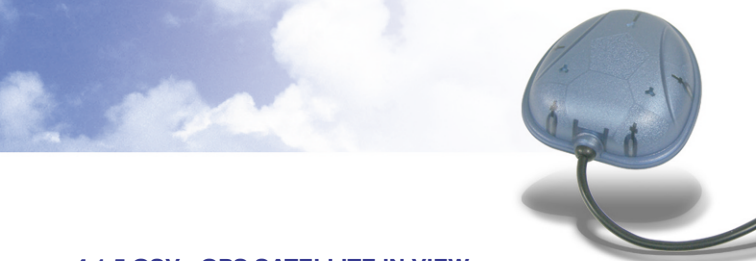
\$GPGSA,<1>,<2>,<3>,<3>,<3>,<3>,<3>,<3>,<3>,<3>,<3>,<3>,<3>,<3>,<3>,<4>,<5>,<6>*<7><CR><LF>

Example:

\$GPGSA,A,3,26,21,,,09,17,,,,,10.8,02.1,10.6*07<CR><LF>

Field	Example	Description
1	A	Mode, 'M' = Manual, 'A' = Automatic
2	3	Fix type, 1 = not available, 2 = 2D fix, 3 = 3D fix
3	26,21,,,09,17,,,,,	PRN number, 01 to 32, of satellite used in solution, up to 12 transmitted
4	10.8	Position dilution of precision, 00.0 to 99.9
5	02.1	Horizontal dilution of precision, 00.0 to 99.9
6	10.6	Vertical dilution of precision, 00.0 to 99.9
7	07	Checksum





4.1.5 GSV - GPS SATELLITE IN VIEW

Number of satellites in view, PRN number, elevation angle, azimuth angle, and C/No. Only up to four satellite details are transmitted per message. Additional satellite in view information is sent in subsequent GSV messages.

Format:

\$GPGSV,<1>,<2>,<3>,<4>,<5>,<6>,<7>, ... ,
<4>,<5>,<6>,<7> * <8><CR><LF>

Example:

\$GPGSV,2,1,08,26,50,016,40,09,50,173,39,21,43,316,
38,17,41,144,42*7C<CR><LF>

\$GPGSV,2,2,08,29,38,029,37,10,27,082,32,18,22,309,
24,24,09,145,*7B<CR><LF>





Field	Example	Description
1	2	Total number of GSV messages to be transmitted
2	1	Number of current GSV message
3	08	Total number of satellites in view, 00 ~ 12
4	26	Satellite PRN number, GPS: 01 ~ 32, SBAS: 33 ~ 64 (33 = PRN120)
5	50	Satellite elevation number, 00 ~ 90 degrees
6	016	Satellite azimuth angle, 000 ~ 359 degrees
7	40	C/No, 00 ~ 99 dBNull when not tracking
8	7C	Checksum





4.1.6 RMC - RECOMMENDED MINIMUM SPECIFIC GPS/TRANSIT DATA

Time, date, position, course and speed data.

Format:

\$GPRMC,<1>,<2>,<3>,<4>,<5>,<6>,<7>,<8>,<9>,<10>,<11>,<12>*<13><CR><LF>

Example:

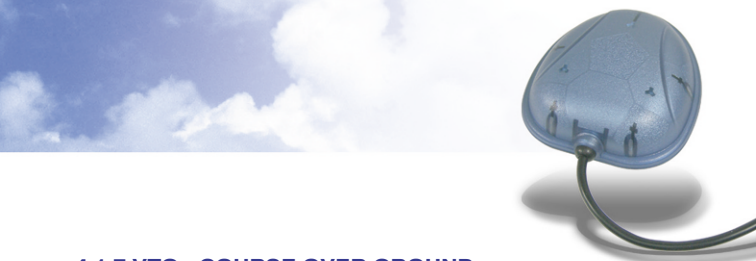
\$GPRMC,104549.04,A,2447.2038,N,12100.4990,E,016.0,221.0,250304,003.3,W,A*22<CR><LF>





Field	Example	Description
1	104549.04	UTC time in hhmmss.ss format, 000000.00 ~ 235959.99
2	A	Status, 'V' = navigation receiver warning, 'A' = valid position
3	2447.2038	Latitude in dddmm.mmmm format Leading zeros transmitted
4	N	Latitude hemisphere indicator, 'N' = North, 'S' = South
5	12100.4990	Longitude in dddmm.mmmm format Leading zeros transmitted
6	E	Longitude hemisphere indicator, 'E' = East, 'W' = West
7	016.0	Speed over ground, 000.0 ~ 999.9 knots
8	221.0	Course over ground, 000.0 ~ 359.9 degrees
9	250304	UTC date of position fix, ddmmyy format
10	003.3	Magnetic variation, 000.0 ~ 180.0 degrees
11	W	Magnetic variation direction, 'E' = East, 'W' = West
12	A	Mode indicator 'N' = Data invalid 'D' = Differential 'A' = Autonomous 'E' = Estimated
13	22	Checksum





4.1.7 VTG - COURSE OVER GROUND AND GROUND SPEED

Velocity is given as course over ground (COG)
and speed over ground (SOG).

Format:

GPVTG,<1>,T,<2>,M,<3>,N,<4>,K,<5>*<6><CR><LF>

Example:

\$GPVTG,221.0,T,224.3,M,016.0,N,0029.6,K,A*1F<CR><LF>

Field	Example	Description
1	221.0	True course over ground, 000.0 ~ 359.9 degrees
2	224.3	Magnetic course over ground, 000.0 ~ 359.9 degrees
3	016.0	Speed over ground, 000.0 ~ 999.9 knots
4	0029.6	Speed over ground, 0000.0 ~ 1800.0 kilometers per hour
5	A	Mode indicator 'N' = Data invalid 'D' = Differential 'A' = Autonomous 'E' = Estimated
6	1F	Checksum





APPENDIX B DEFAULT VALUES

The product has the following factory preset default values:

Datum:	000 (WGS-84)
NMEA Enable Switch:	GGA ON (1 sec. output) GDL OFF GSA ON (5 sec. output) GSV ON (5 sec. output) RMC ON (1 sec. output) VTG ON (1 sec. output) Checksum ON
Baud Rate:	4800 Baud
Elevation Mask:	5 degrees
DOP Mask:	DOP Select: Auto GDOP: 10 PDOP: 10 HDOP: 10
Receiver Operating Mode:	Normal Mode (without 1PPS)

Commands can be issued to the HI-204III to change the settings of the receiver. The new settings will remain effective on next power-on as long as the on-board rechargeable backup battery is not discharged. After the backup battery is discharged, factory preset default settings will be used.

TROUBLESHOOTING



Problem	Reasons	Solutions
No Position output but timer is counting	Weak or no GPS signal can be received at the place of HI-204III-USB unit	Place the HI-204III-USB under an open space, then, press 'Reset'
	At outdoor space but GPS signal is blocked by building or car roof	To try again, go to outdoor and press 'Reset' or connect external antenna on the side of HI-204III-USB to improve the poor GPS signal
Can't open COM port	The PS/II connector did not insert correctly or some other application is the COM port	Plug HI-204III-USB connector firmly or close all other application that occupied the COM port
Can not find HI-204III-USB	Poor connection	Check HI-204III-USB if Plug firmly
No signal	No action for few minutes may causes PocketPC into the power saving mode. It could close the COM port at the same time.	Close all applications and execute it again to re-open the COM port
	Weak or no GPS signal when using HI-204III-USB indoor or inside the car.	Put HI-204III-USB to an open space or car roof, then, press the Reset button





USB Driver Setup Guide

HI-204III-USB

USB GPS Receiver



A. Introduction of GPS USB Driver Files

The USB GPS driver group consists of 6 files.

Files Name	Description of Specific Property
DRemover98_2K.exe	Type: Application This execution file removes GPS USB driver from the PC.
Serwpl.inf	Type: Setup Information This file provides major setup information.
Win2K\ser2pl.sys	Type: System File This file provides Windows 2000 and Windows XP hardware specific interface.
Win98_ME\ser9pl.sys	Type: System File This file provides Windows 98 and Windows Millennium hardware specific interface.
Win98_ME\serspl.inf	Type: Setup Information This file provides Windows 98 and Windows Millennium setup information
Win98_ME\serspl.vxd	Type: Virtual Device Driver This file is virtual device driver.



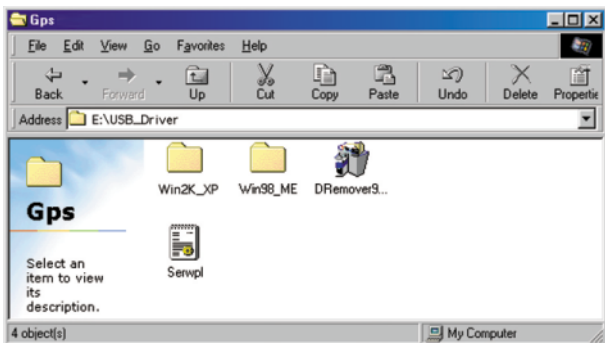


Figure 1: Screen of GPS USB Driver Group

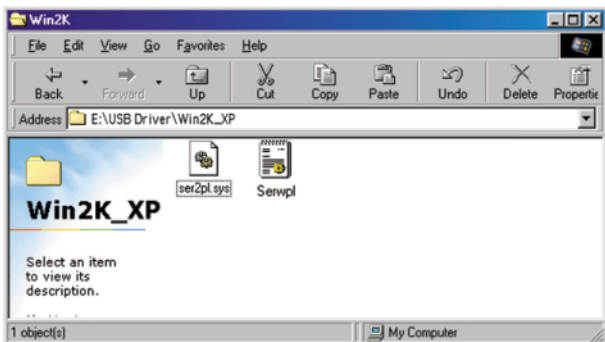


Figure 2: Screen of GPS USB Driver Win 2000 and Win XP System File

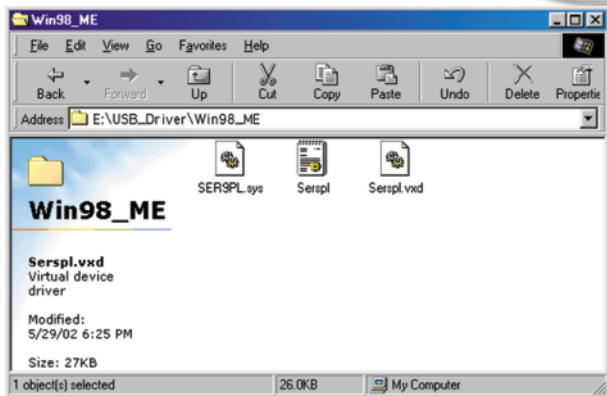


Figure 3:
Screen of GPS USB Driver Win 98 and Win ME Group





B.Windows 98 Interface

1. Install GPS USB Driver

Before the installation of GPS USB driver, there are three procedures required.

The first thing is to turn on PC in the Windows environment. The second thing is to copy USB driver into HDD. The third thing is to plug the GPS receiver into the USB port of PC and then follow the installation guide.



Step 1:

Click the "Next" button

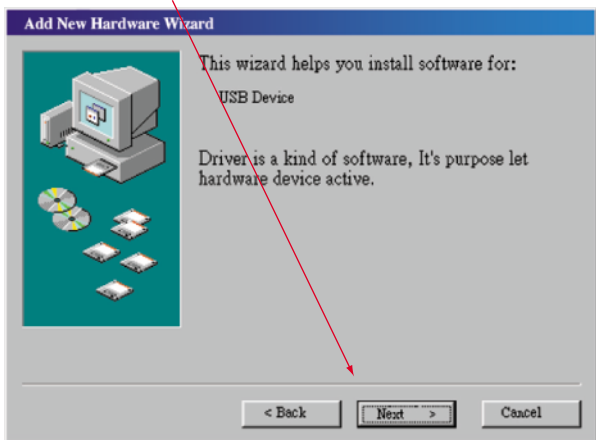


Figure 4:

Win 98 Automatic Installation Driver Screen



Step 2:

Select "Automatically" and click the "Next" button

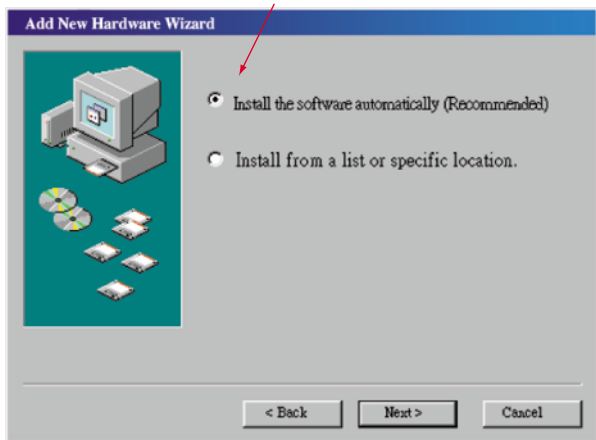


Figure 5:

Win 98 Automatic Installation Driver Screen



Step 3:

Specific driver location and click the "Next" button

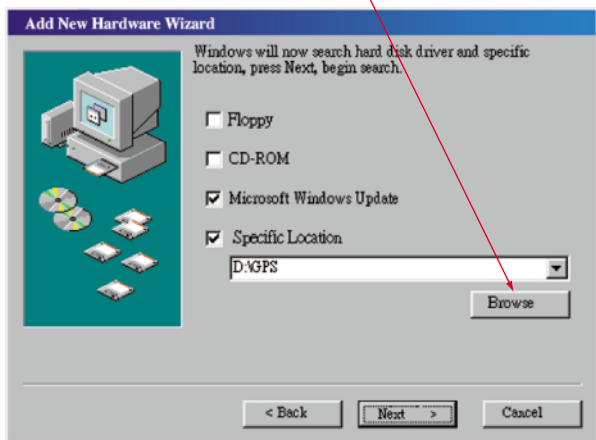


Figure 6:

Win 98 Automatic Installation Driver Screen



Step 4:

Click the "Next" button

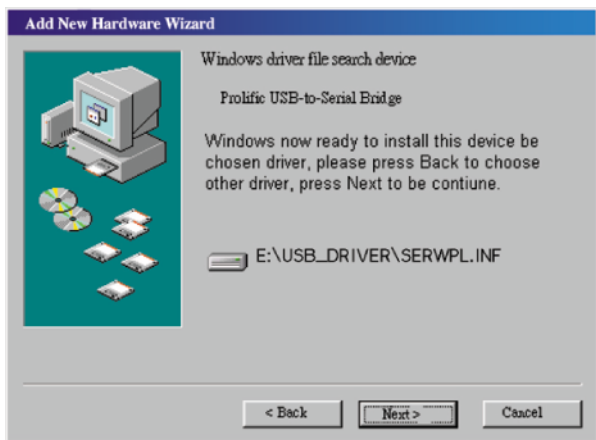


Figure 7:

Win 98 Automatic Installation Driver Screen



Step 5:

Click the "Finish" button



Figure 8:

Win 98 Automatic Installation Driver Screen



2. Check Enable COM Port Number

After you install GPS USB driver, you should know which COM port is available, and check enabled COM port number.

You need to know the COM port assignment for the GPS receiver, when configuring map or chart software. Please notice that this remark is very important; if not configured properly, the mapping software will not communicate with the GPS receiver.

To check your assigned COM port for the GPS receiver, please follow the instructions below.

Step 1:

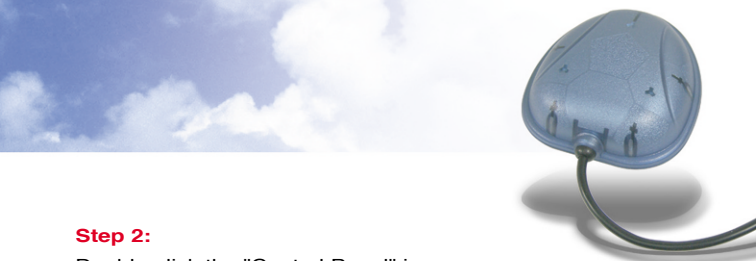
Check enabled COM port number by double-clicking the icon show in Figure-9, and then a dialog window shown in Figure-10 will be pop up.



My Computer

Figure 9: My Computer Icon





Step 2:

Double-click the "Control Panel" icon

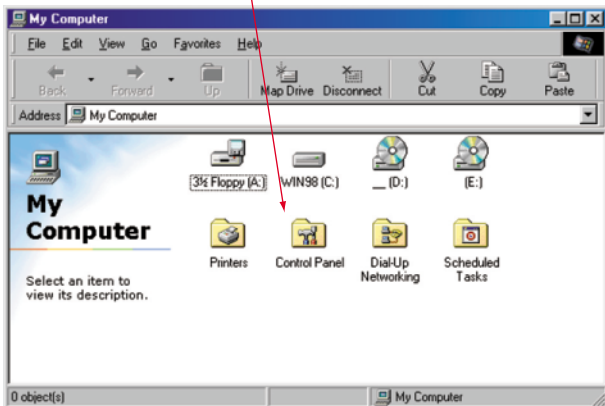


Figure 10:

My Computer Screen





Step 3:

Double-click the "System" icon

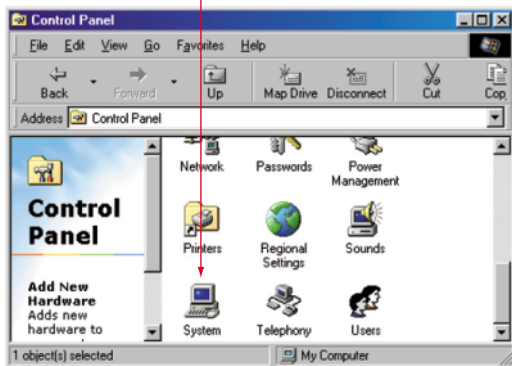
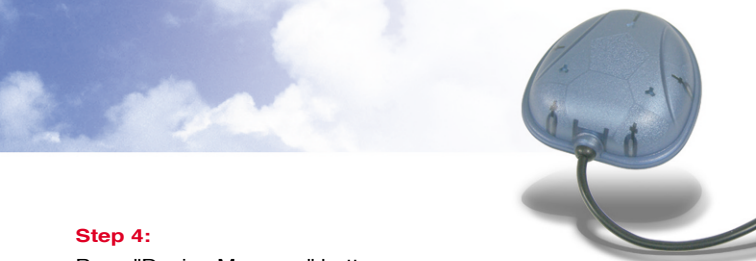


Figure 11:

Control Panel Screen





Step 4:

Press "Device Manager" button

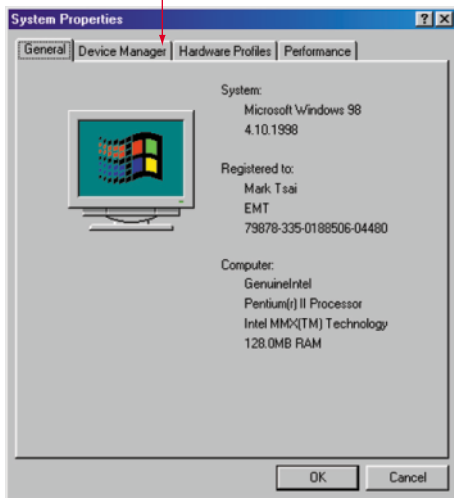


Figure 12:

System Properties Screen





Step 5:

Select "USB to Serial Port" (COM3) and click "Properties" button

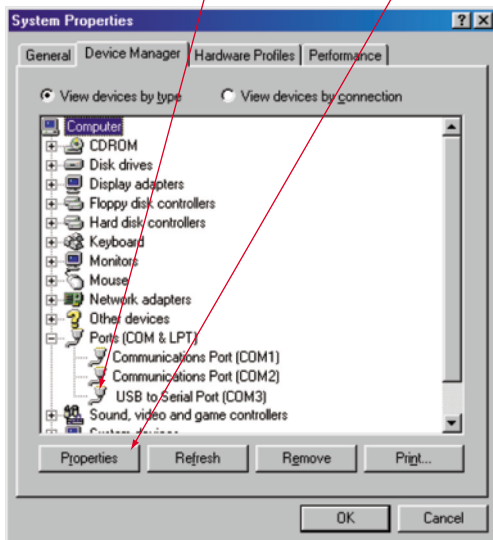
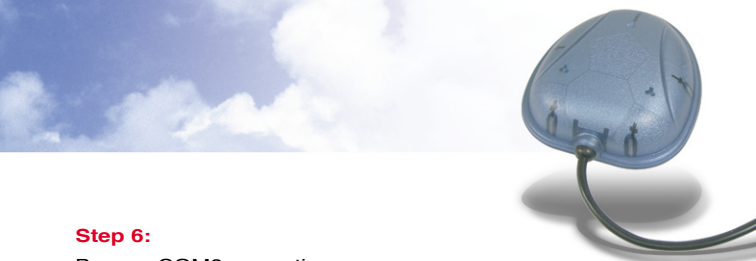


Figure 13:
System Properties Screen



Step 6:

Browse COM3 properties



Figure 14:

System Properties Screen





3. Remove GPS USB Driver

If you want to update the USB driver, you should remove existing driver and install new one.

Step 1:

Remove GPS USB driver by double-clicking the icon shown in Figure-15. A dialog window shown in Figure-16 will be pop up.



Figure 15:
GPS USB Driver Remove Icon

Step 2:

Click "OK" button

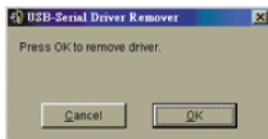


Figure 16: Remove Driver Screen

Step 3:

Click "Yes"

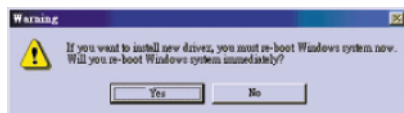


Figure 17: Driver Remove Warning Screen

C. Windows XP Interface

1. Install GPS USB Driver

Before the installation of GPS USB driver, there are three procedures required.

The first thing is to turn on PC in the Windows environment. The second thing is to copy USB driver into HDD. The third thing is to plug the GPS receiver into the USB port of PC and then follow the installation guide.

Step 1:

Select "Install from a list or specific location (Advanced)"



Figure 18:

Win XP Automatic Installation Driver Screen



Step 2: Select "Include this location in the search" OR "Browse" to specific GPS USB driver location

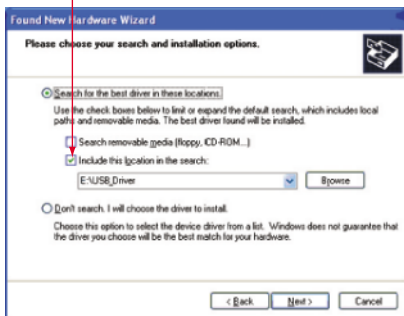


Figure 19: Win XP Automatic Installation Driver Screen

Step 3: Click "Continue Anyway" button



Figure 20: Win XP Automatic Installation Driver Screen

Step 4:

Finish screen



Figure 21:

Win XP Automatic Installation Driver Screen

Step 3:

Click "Continue Anyway"
button



Figure 22:

Win XP Automatic Installation Driver Screen





2. Check Enable COM Port Number

After you install GPS USB driver, you should know which COM port is available, and check enabled COM port number.

You need to know the COM port assignment for the GPS receiver, when configuring map or chart software. Please notice that this remark is very important; if not configured properly, the mapping software will not communicate with the GPS receiver.

TO check your assigned COM port for the GPS receiver, please follow the instructions below.

Step 1:

Check enabled COM port number by clicking "Start" → clicking "Control Panel" → double-clicking "System" icon



Step 2:

Select "Hardware"

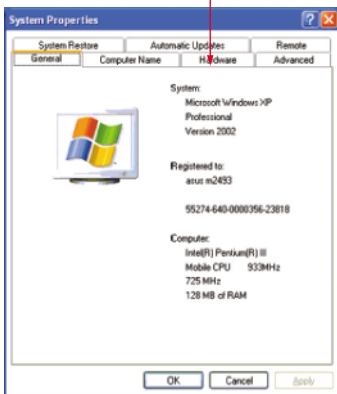


Figure 23:

System Properties Screen





Step 3:

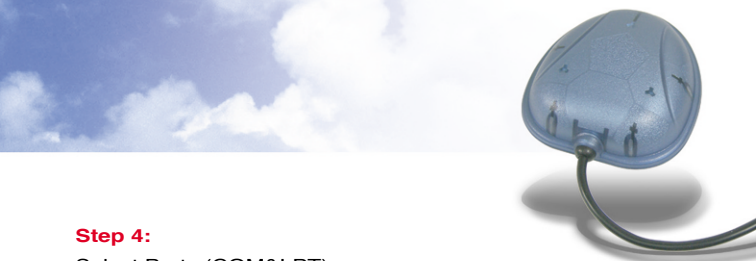
Select "Device Manager"



Figure 24:

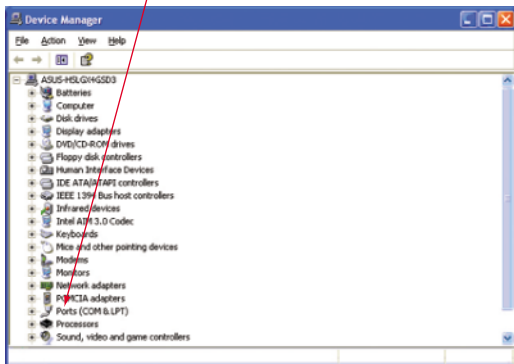
System Properties Screen





Step 4:

Select Ports (COM&LPT)



Figure

25: Device Manager Screen





Step 5:

Select COM4

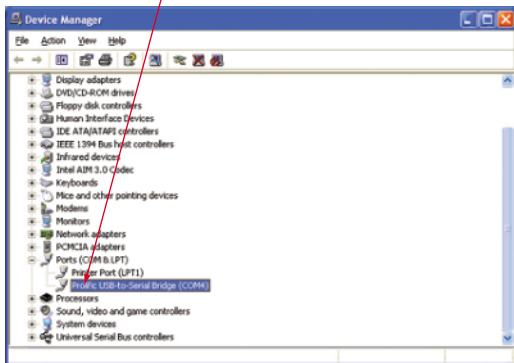


Figure 26:

Device Manager Screen



Step 6:
Select "Driver"

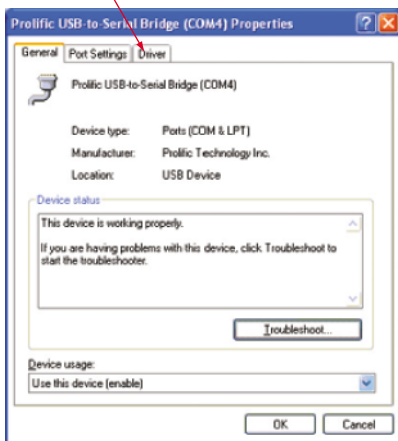


Figure 27:
USB-to-Serial Bridge Screen





Step 7:

Browse COM4 properties



Figure 28:

USB-to-Serial Bridge Properties Screen



3 Remove GPS USB Driver

If you want to update the USB driver, you should remove existing driver and install new one.

Step 1:

Remove GPS USB driver by double-clicking the icon shown in Figure-29. A dialog window shown in Figure-30 will be pop up.



Figure 29:
GPS USB Driver remove icon

Step 2:

Click "OK" button

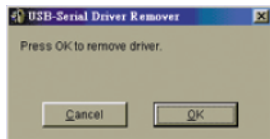


Figure 30:
Remove Driver Screen

Step 3:

Click "Yes" button



Figure 31:
Driver Remove Warning Screen





D. Change COM Port Number Application Program

If the notebook assigns COM number to COM5, then can to execute SetCOM.exe for COM number change.





Step 1:

For change COM port number assign by double-clicking the icon show in Figure-32, and then small icon shown in Figure-34 will be pop up.



SetCOM.exe

Figure 32:

SetCOM.exe Icon



Figure 33:

Start bar on the right-below corner of screen



Figure 34:

Start bar on the right-below corner of screen





Step 2:

by clicking the icon show in Figure-34. a dialog window shown in Figure-35 will be pop up.

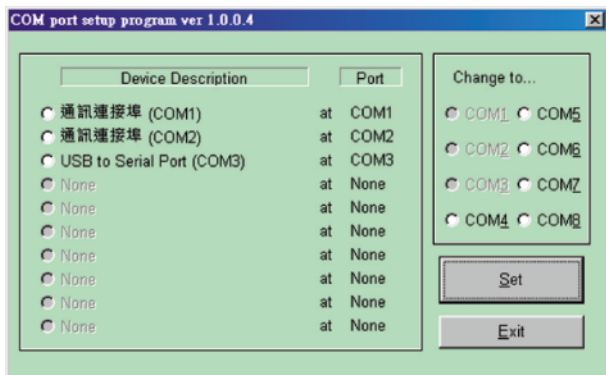
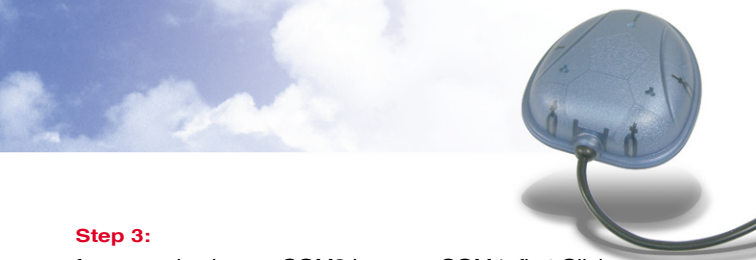


Figure 35:
COM port number change screen





Step 3:

for example change COM3 become COM4, first Click COM3 and COM4 then Click "Set" button

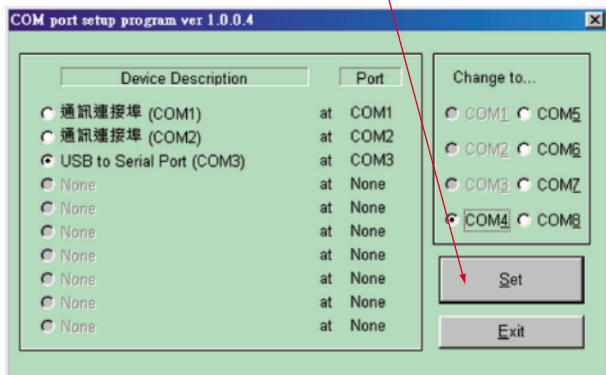


Figure 36:

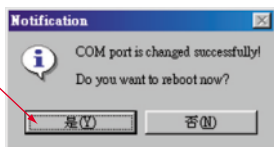
COM port number change screen

Step 4:

Click "Yes" button

Figure 37:

Notification Screen





E. Important Remarks

1. If your system is Windows Millennium, please refer to Windows 98 installation guide. If your system is Windows 2000, please refer to Windows XP installation guide.
2. If you follow the steps but the GPS receiver doesn't work, please try to unplug the GPS receiver from the USB port, wait for 5~8 seconds, and re-plug the GPS receiver into your PC.
3. Occasionally the mouse cursor does not work properly when you run the Win2000 and Win XP, and this situation is owing to Win2000 and Win XP operating system instead of the GPS receiver. Microsoft announces that this situation is "the serial device may be detected as a serial mouse in Win2000 and Win XP".





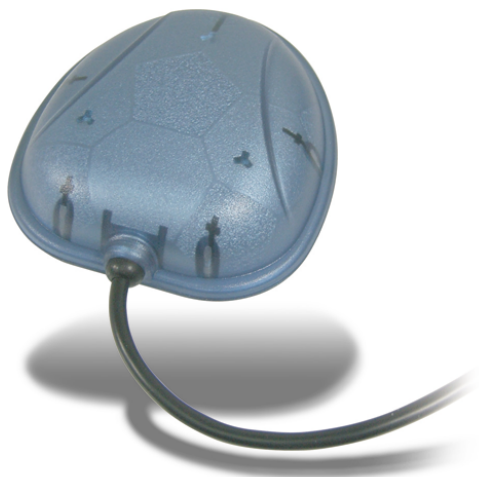
4. If your GPS receiver is recognized as a Microsoft serial mouse, there are two ways and you can choose either one to solve the problem. The first is to unplug the GPS receiver from PC, wait for 5~8 seconds, and re-plug the GPS receiver into your PC. The second is to disable this serial mouse; you can follow the step-by-step instructions below.

Click "start" → click "Control Panel" → double-click "system" icon → click "Hardware" → click "Device Manager" → click "Mouse" → select the wrong mouse → click your real mouse right button → disable the wrong mouse.



Should you have any additional question regarding the operation of USB GPS receiver, please feel free to contact your correspondent sales representative. It is important that you record what problems you encounter and what error messages occur at that point, so that the technical support people can detect your problems more efficiently.





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