



AU7

User Manual

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Contents

1.	Notification	3
1.1.	Disclaimer	3
1.2.	Copyright.....	3
1.3.	Warning	3
2.	Hardware.....	4
2.1.	Package Content	4
2.2.	Pin Assignments	5
2.2.1.	Serial Cable (JST Female Connector to DB9 Female Connector).....	5
2.2.2.	Power/IO connector (Male; On Device).....	5
2.3.	Installation.....	6
3.	Firmware Upgrade	7
3.1.	Firmware Upgrade by serial connection	7
3.2.	LED Indications	13
4.	Appendix.....	14
4.1.	Hardware Specification	14
4.2.	FCC Regulations:.....	15

1. Notification

1.1. Disclaimer

This document, and all other related products, such as device, firmware, and software, is developed by ATrack Technology Inc. thoroughly. At the time of release, it is most compatible with specified firmware version. Due to the functionalities of the devices are being developed and improved from time to time, the change in the protocol, specification, and firmware functions are subjects to change without notice. ATrack Technology Inc. is obligated to modify all the documentation without the limitation of time frame. A change notice shall be released to ATrack Technology Inc. customers upon the completion of document modification.

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1.2. Copyright

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1.3. Warning

Connecting the wire inputs can be hazardous to both the installer and your vehicle's electrical system if not done by an experienced installer. This document assumes you are aware of the inherent dangers of working in and around a vehicle and have a working understanding of electricity.

2. Hardware

2.1. Package Content

Each package contains the following device/accessories:

- Device * 1



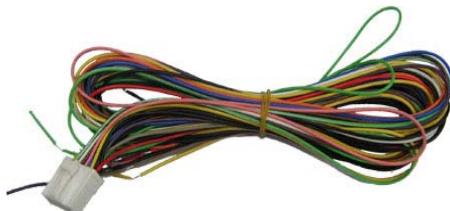
- CDMA Antenna * 1



- GPS Antenna * 1



- Power/IO Cable * 1



- Serial Cable * 1



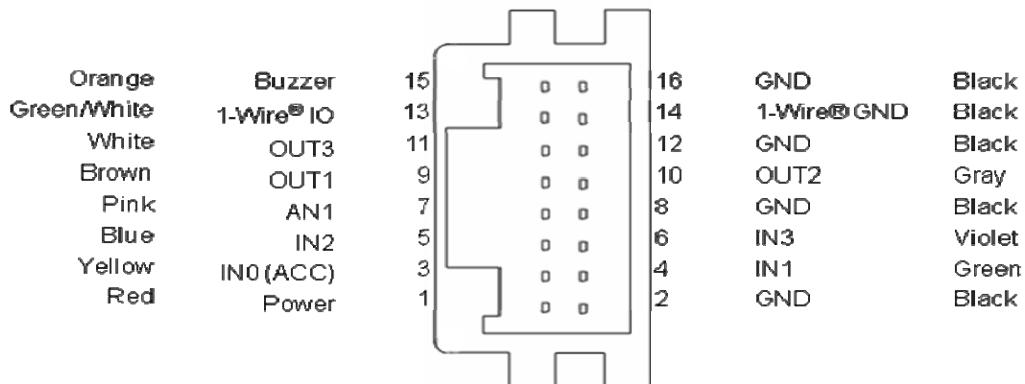
2.2. Pin Assignments

2.2.1. Serial Cable (JST Female Connector to DB9 Female Connector)



The Pin 9 is a power output port to provide a 5V, 300mA power source for accessory that connects to the serial port. If the connected accessory requires more power, please use external power source instead.

2.2.2. Power/IO connector (Male; On Device)



Positive Inputs: IN0, IN1 (Triggered when connects to V+ range from 3.7 ~ 40V)

Negative Inputs: IN2, IN3 (Triggered when connects to ground range from 0.8 ~ 0V)

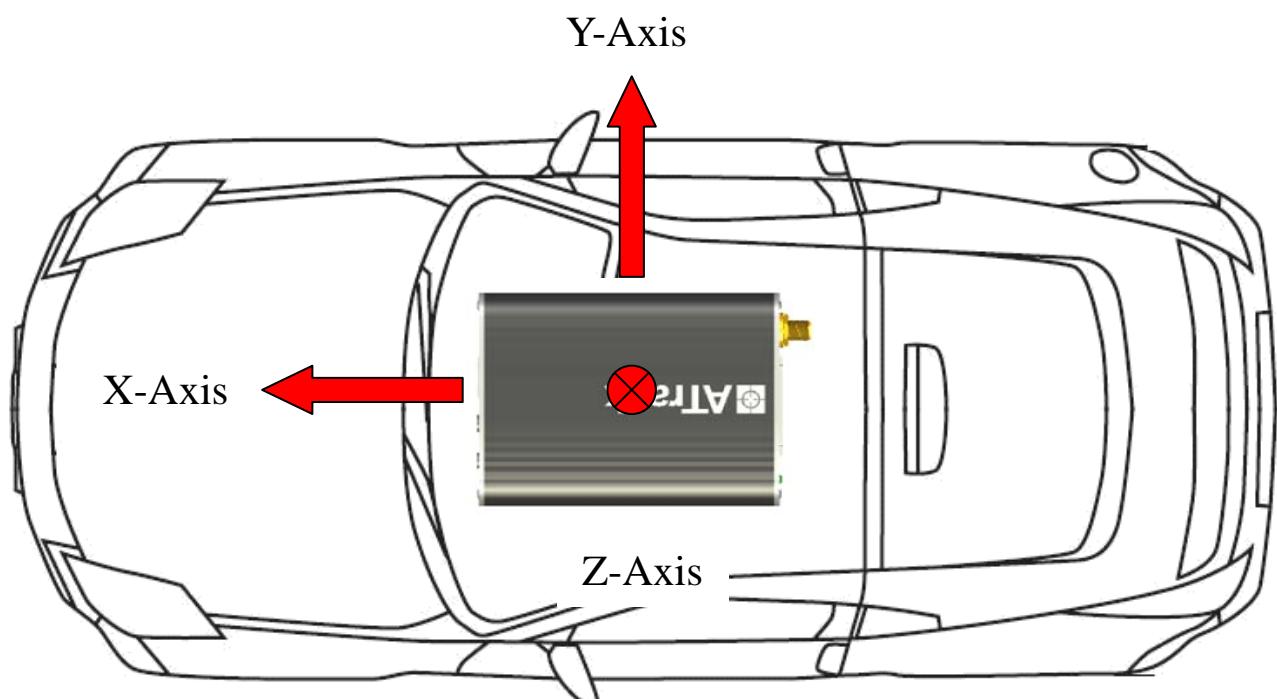
Analog Input: 0 ~ 40 V; 10-bit Resolution.

All outputs are open collector type (grounded when enabled).

DO NOT CONNECT ANY POWER SOURCE TO 1-WIRE IO AND 1-WIRE GND TO AVOID DAMAGE.

2.3. Installation

When installing the device onto the vehicle, it is necessary to make sure that the direction of the device is following the picture demonstrated in the below picture, in order to have the G-Sensor working properly for harsh driving event detections. The forces on the axes are used to determine the harsh driving event status, hence if the installation is not able to be like in the picture, it is suggested to use GPS for detection instead.

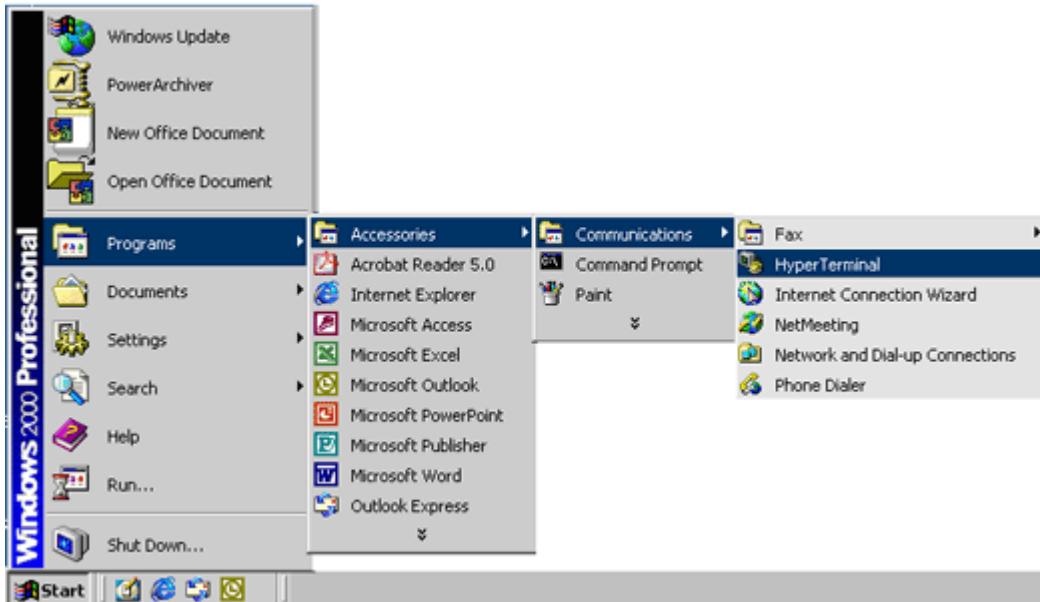


Note: when installing the device, the vehicle should be parked on a horizontal place (not tilted). The device then should be installed parallel to the vehicle body and fixed with mounting bracket or double side adhesive as shown to ensure the G-Sensor is functioning properly.

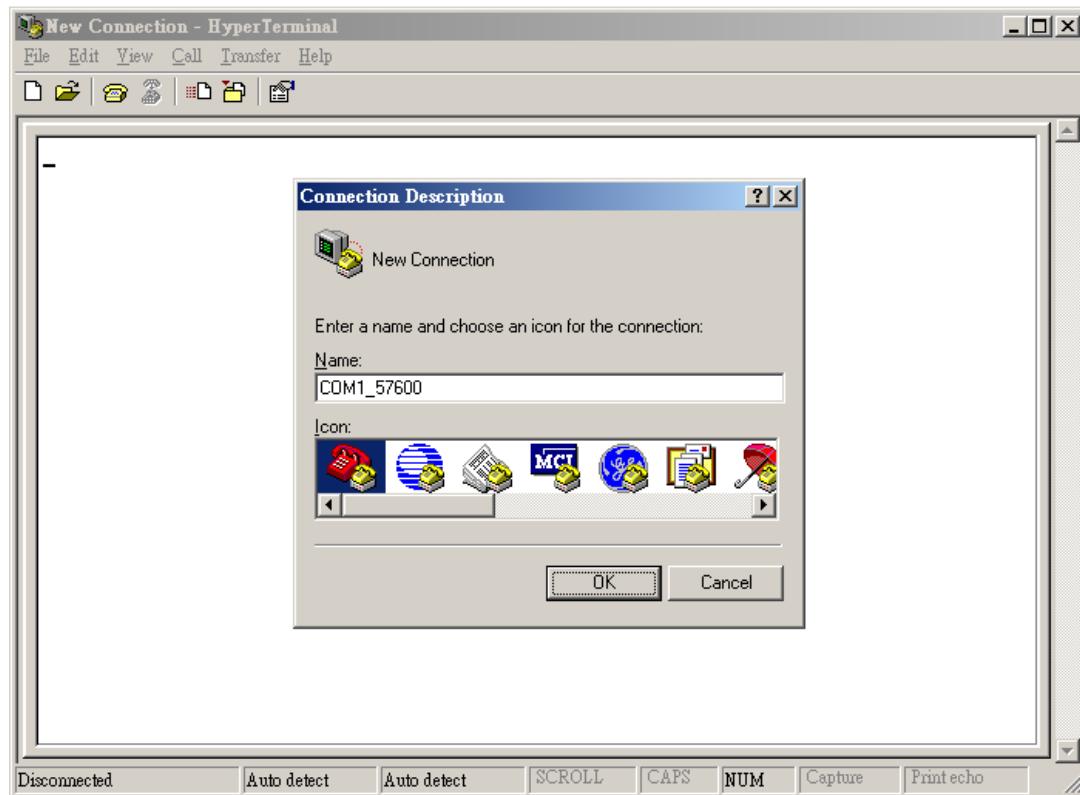
3. Firmware Upgrade

3.1. Firmware Upgrade by serial connection

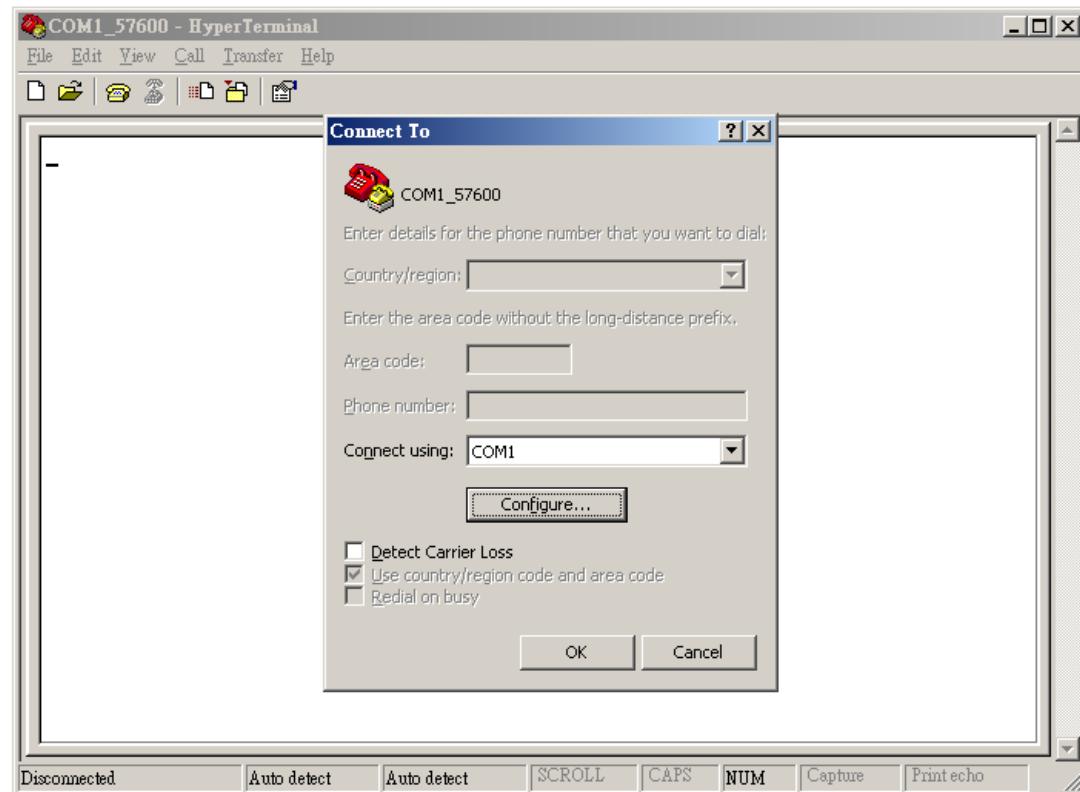
(1) Run HyperTerminal program



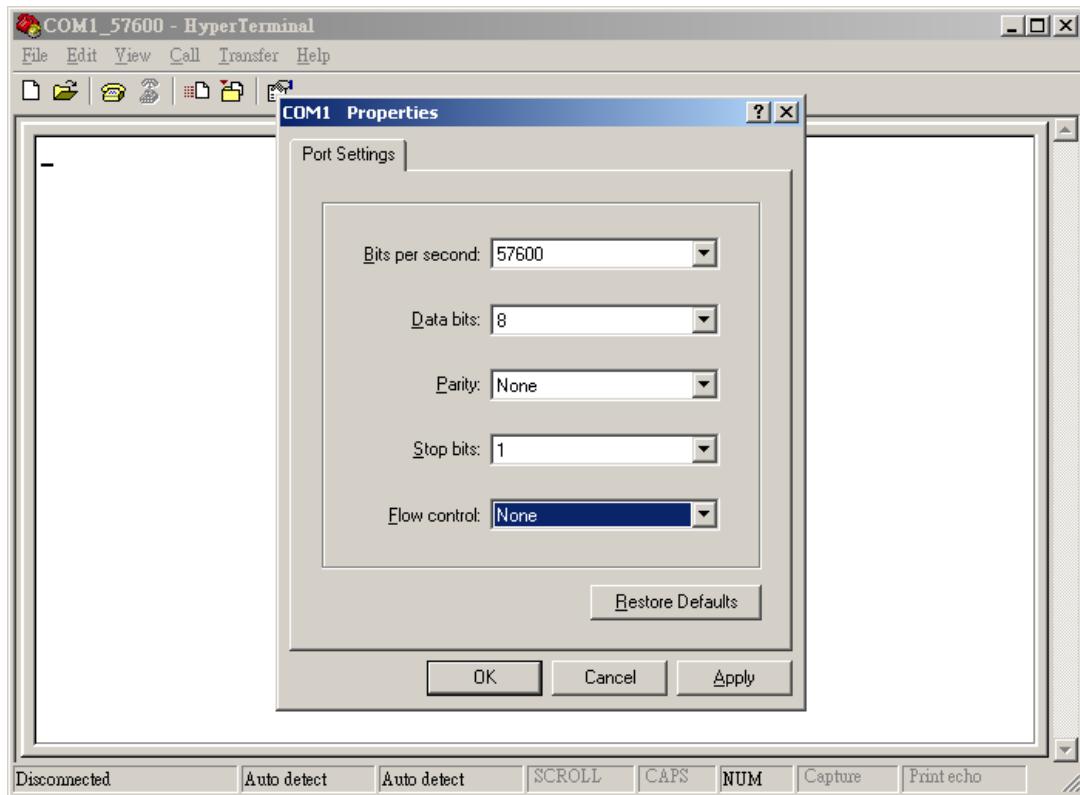
(2) Enter a name for the connection



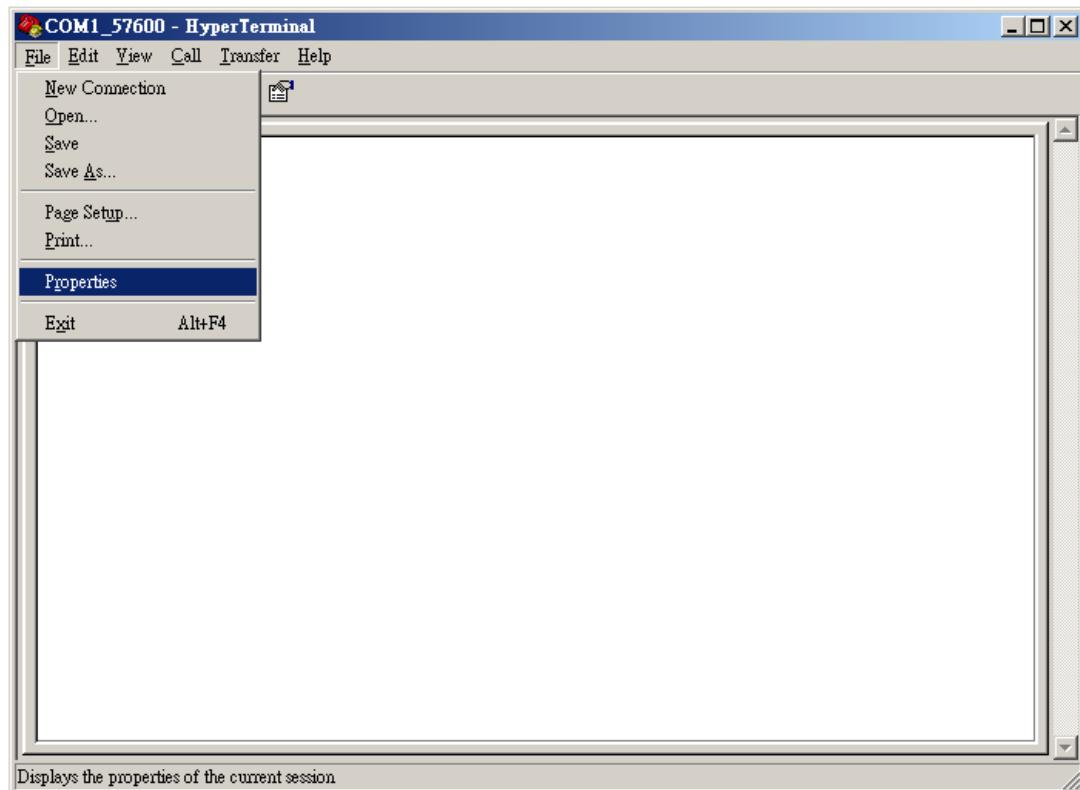
(3) Choose COM port and click [Configure...] button.



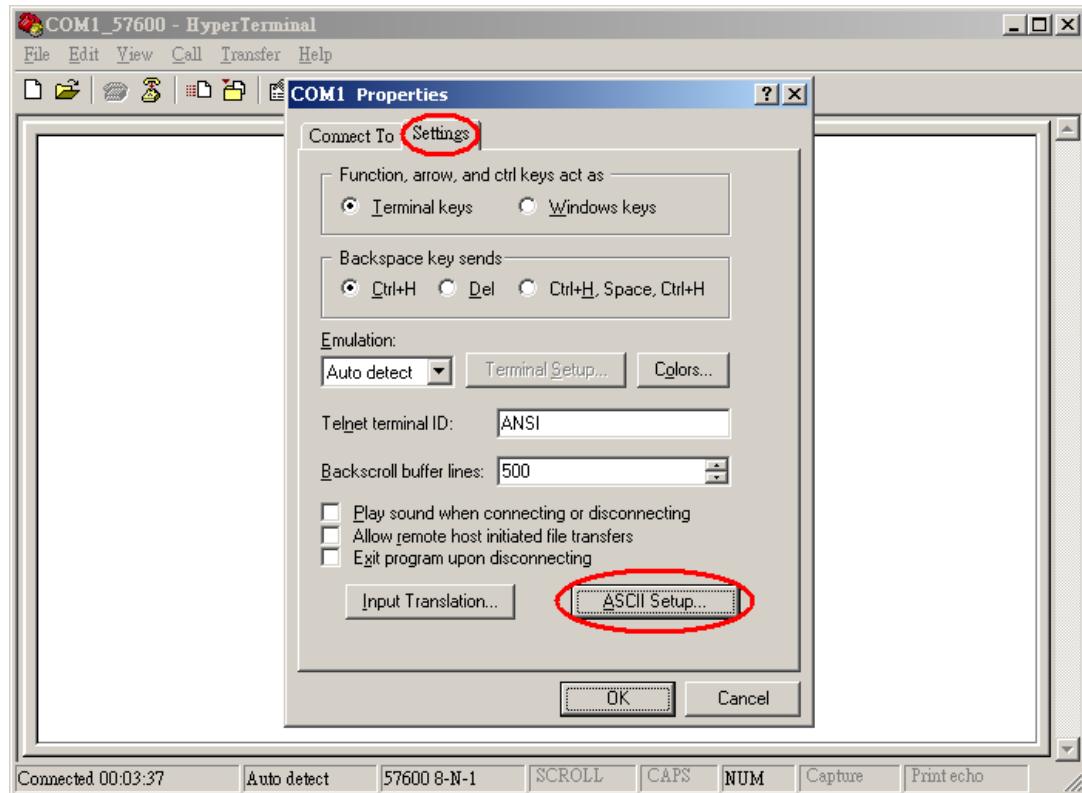
(4) Choose 57600,8,N,1 None flow control properties and click [OK] button.



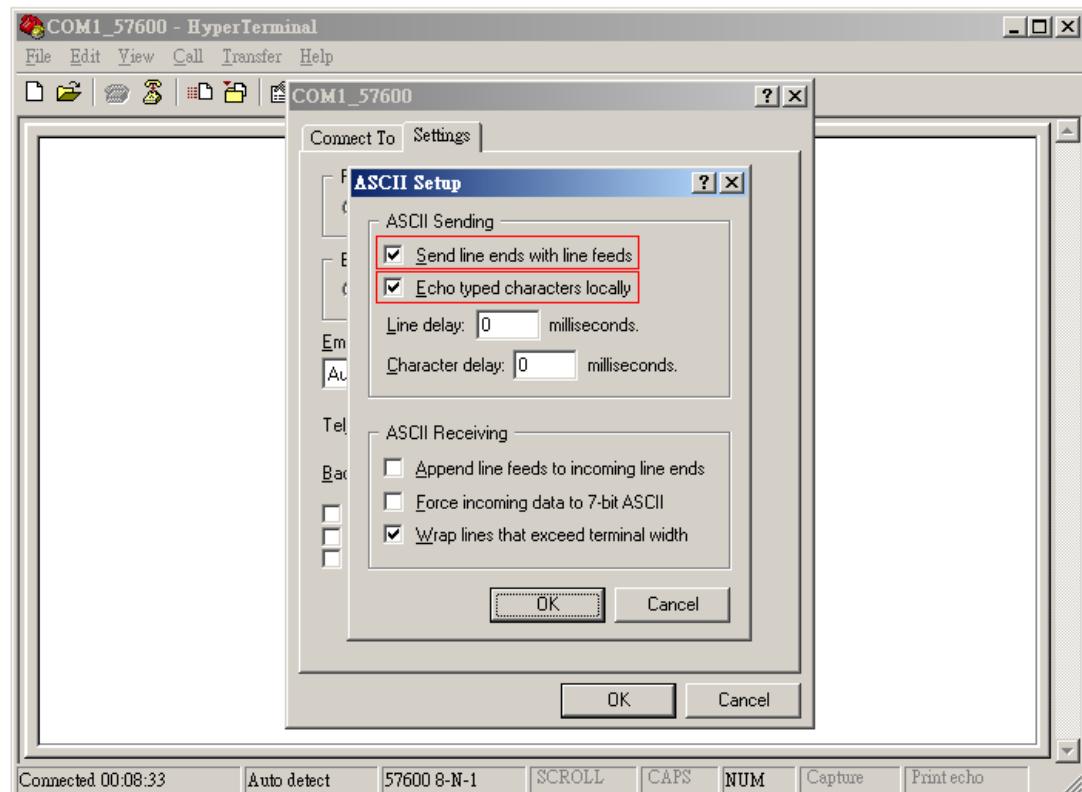
(5) Click [File]→[Properties]



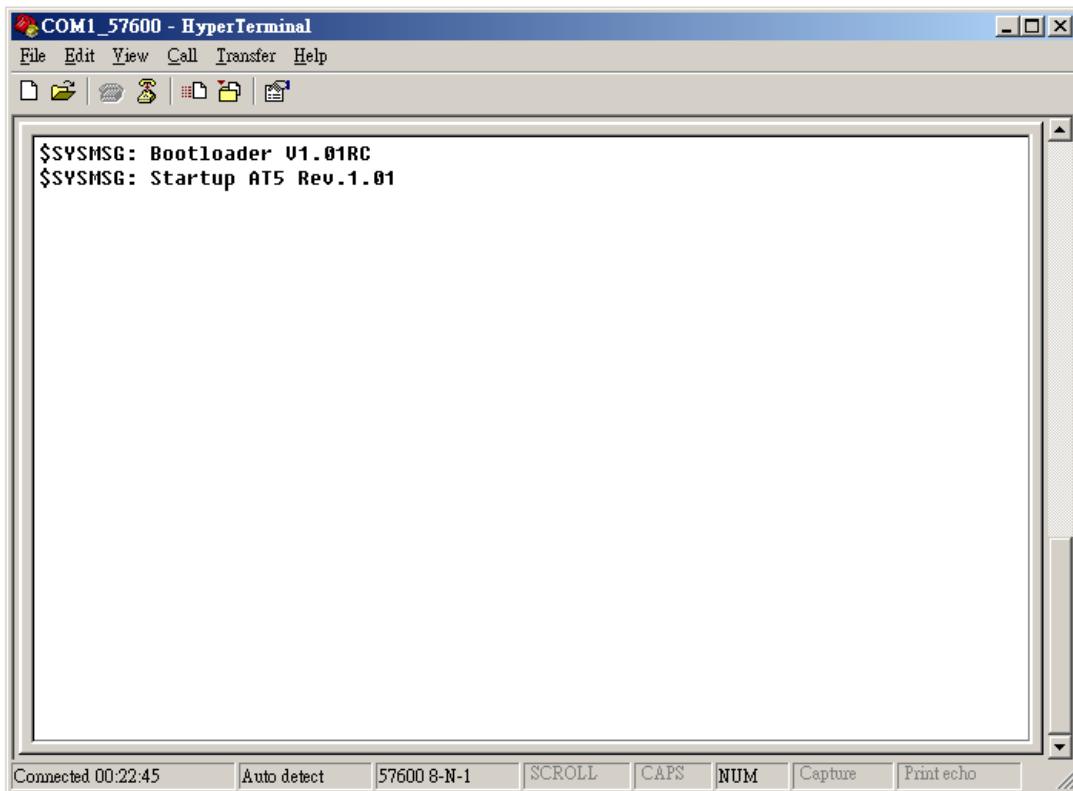
(6) Click [Settings] tab and [ASCII Setup...] button



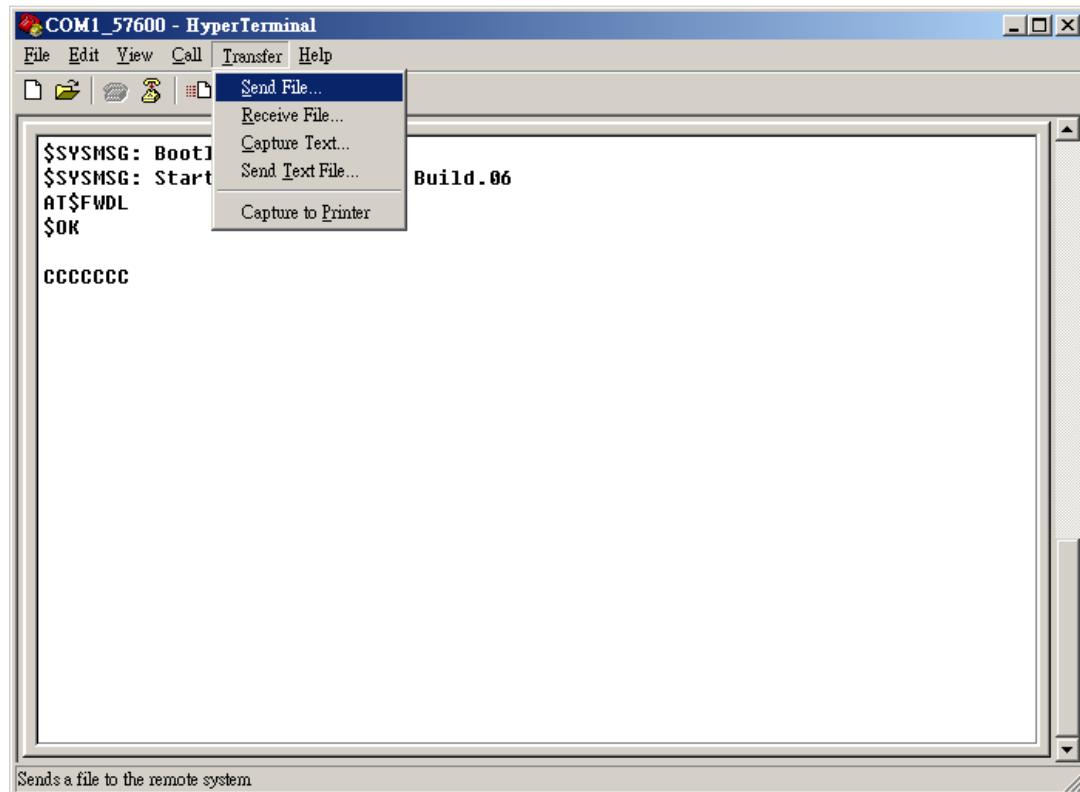
(7) Checked the following option and click [OK] button



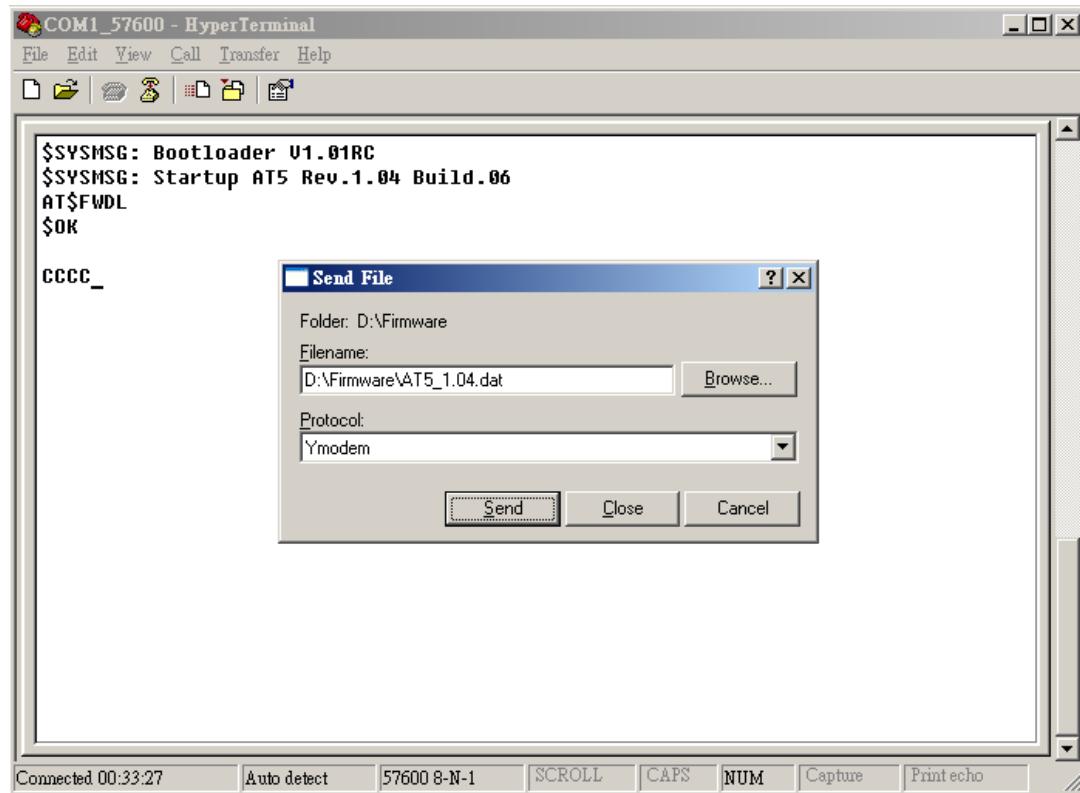
(8) Power ON the device. The startup message will show on the screen.



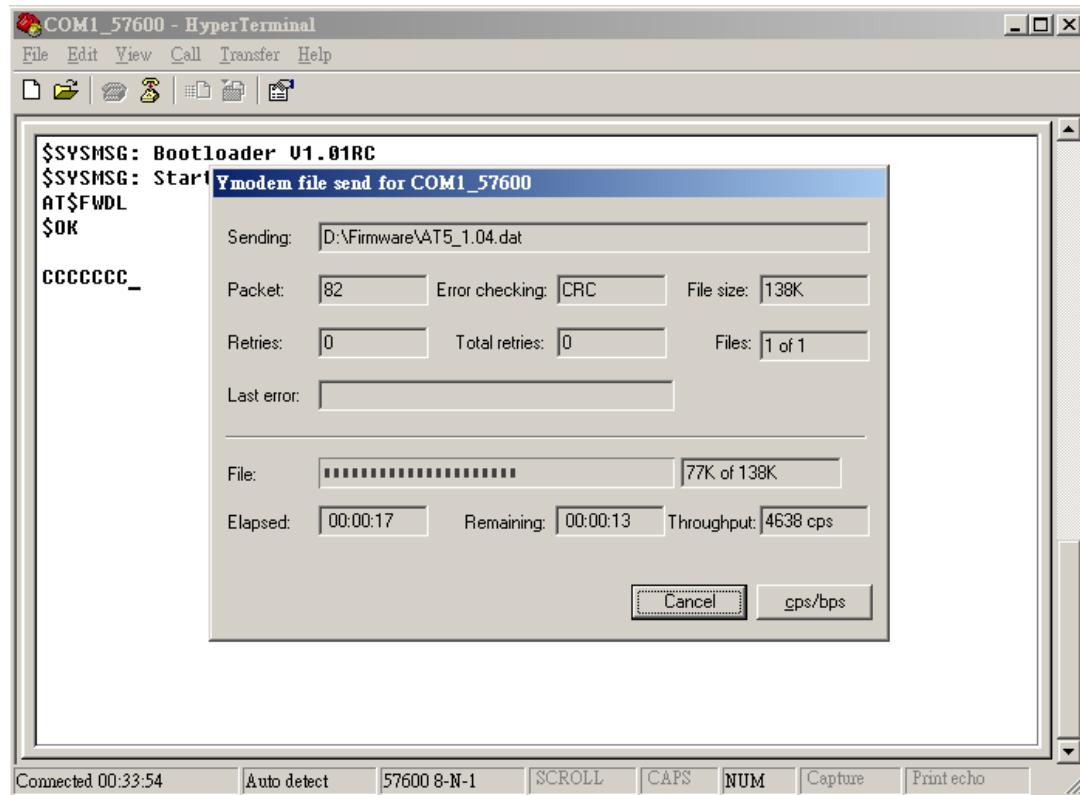
(9) Type "AT\$FWDL" command and press [Enter] key. Choose [Transfer]→[Send File...]



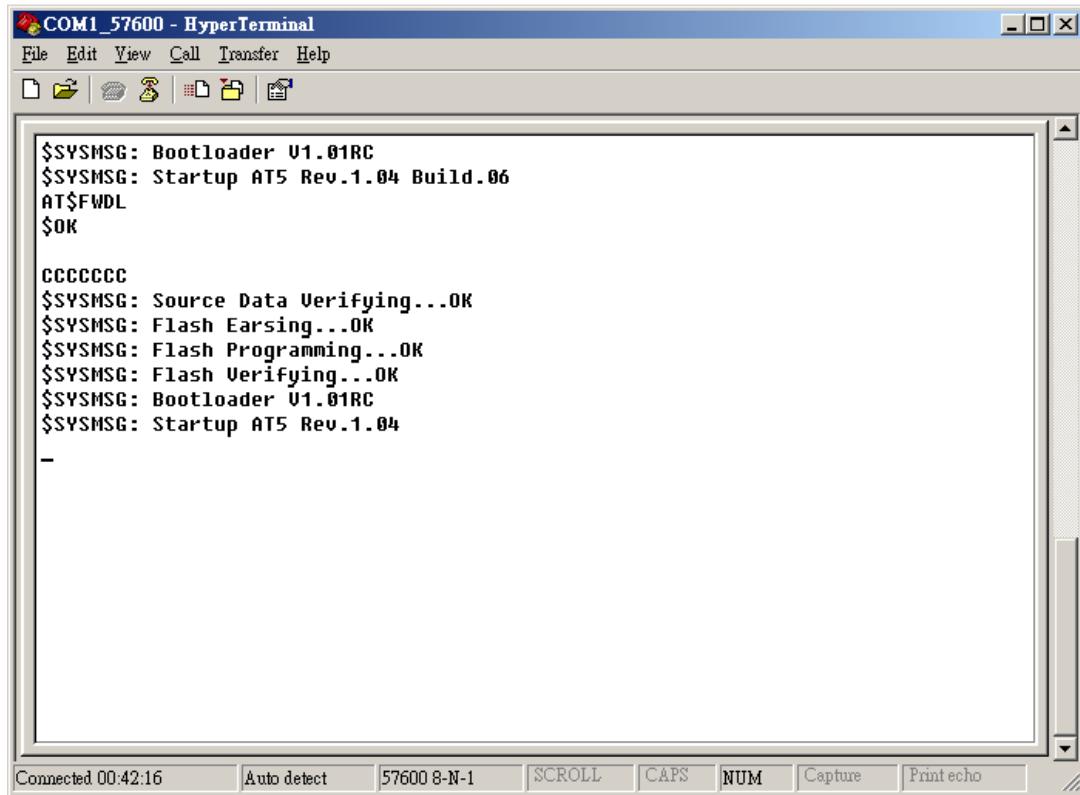
(10) Choose the firmware filename which is provided by ATrack and select [Ymodem] Protocol option and click [Send] button.



(11) When [Send] button is clicked, the file transfer progress will show as below:



(12) When file sending is completed, the device will program and restart itself automatically.



```

$SYSMSG: Bootloader V1.01RC
$SYSMSG: Startup AT5 Rev.1.04 Build.06
AT$FWDL
$OK

CCCCCCC
$SYSMSG: Source Data Verifying...OK
$SYSMSG: Flash Earsing...OK
$SYSMSG: Flash Programming...OK
$SYSMSG: Flash Verifying...OK
$SYSMSG: Bootloader V1.01RC
$SYSMSG: Startup AT5 Rev.1.04
-
```

3.2. LED Indications

LED	Indication	Description
PWR (Green)	Solid On	In full operation mode
	1 blink (0.1 sec.) in every 10 sec.	In sleep mode
	1 sec. On, 1 sec. Off	GPS module off, External power lost, running on backup battery
GPS (Red)	0.7 sec. On, 0.7 sec. Off	Searching GPS signal
	Solid On	Position get fixed
CDMA (Red)	Off	CDMA module off
	0.7 sec. On, 0.7 sec. Off	Searching CDMA signal
	0.2 sec. On, 2 sec. Off	Registered to CDMA network
	Continuous blinking	SIM PIN Error

Note: In the case of SIM PIN Error, the device will check the AT\$SPIN every 10 minutes and try to access the SIM again. If the PIN is not corrected within 3 times of checking, including the first inserting time, the SIM card will be locked. Once the SIM is locked, you need to contact your CDMA carrier for the PUK to unlock the SIM card on a cellular phone.

4. Appendix

4.1. Hardware Specification

AU7		
Physical Characteristics		
Dimension	100 * 65 * 26 mm	
CDMA Module	Bual band CDMA 850/1900MHz	
GPS Module	High Sensitivity (44 Channel)	
CDMA and GPS Antennas	SMA Connector Type	
Accelerometer	Built-In 3-Axis @ 16G _{MAX}	
Audio Amplifier	Built-In	
Real-Time Clock	Built-In	
Memory Capacity	8MB	
Casing	Aluminum alloy	
Electrical Characteristics		
Power Source	8-40 VDC	
Power Consumption	Operational Sleep Deep Sleep	80 mA @ 12VDC
		18 mA @ 12VDC
		4 mA @ 12VDC
I/O Characteristics		
Device I/O Ports	Positive Inputs	2 (Triggering voltage: 3.7 ~ 40V)
	Negative Inputs	2 (Triggering voltage: 0 ~ 0.8V)
	Analog Input	1 (0 ~ 40V with 10-bit resolution)
	Negative Outputs	3 (Open Collector Type @ 300mA _{MAX})
Serial	Configurable	1
	Baud rates	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps
1-Wire (AU7 ONLY)		1
Environmental Characteristics		
Operation	Temperature	-30 ~ +65°C (Note: Temp. up to +85°C with extreme condition)
Storage	Temperature	-40 ~ +85°C
	Relative Humidity	5 ~ 95%

4.2. FCC Regulations:

- This 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, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- This device 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

► RF Exposure Information

This device meets the government's requirements for exposure to radio waves.

This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

- This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.