



AU5(i) User Manual

Revision: 01
Revision Date: 2011/08/02

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 |
| 3. | Firmware Upgrade | 6 |
| 3.1. | Firmware Upgrade by serial connection | 6 |
| 4. | Appendix..... | 13 |
| 4.1. | Hardware Specification | 13 |
| 4.2. | FCC Regulations:..... | 14 |

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.

ATrack Technology Inc. products are not intended to be used as life support or rescue equipments. ATrack Technology Inc. is not liable for any loss or injury caused by using or referencing to any products. Any possible means of using or integrating ATrack Technology Inc. products shall be avoided.

1.2. Copyright

ATrack Technology Inc. holds all parts of intellectual rights applicable in the copyright laws in all the countries. Any or all parts of this document shall not be exposed to non-authorized party without any form of approval from ATrack Technology Inc. Any forms, including but not limited to oral, copy, or internet sharing, of releasing or exposing information to an unauthorized party shall be prohibited. ATrack Technology Inc. reserves the rights of litigation in the violation of such copyright laws.

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



- GPS Antenna * 1



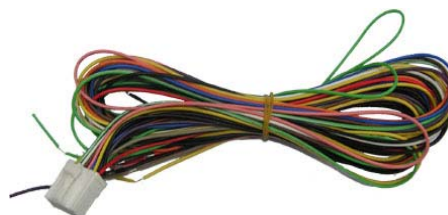
- Serial Cable * 1



- GSM/UMTS Antenna * 1

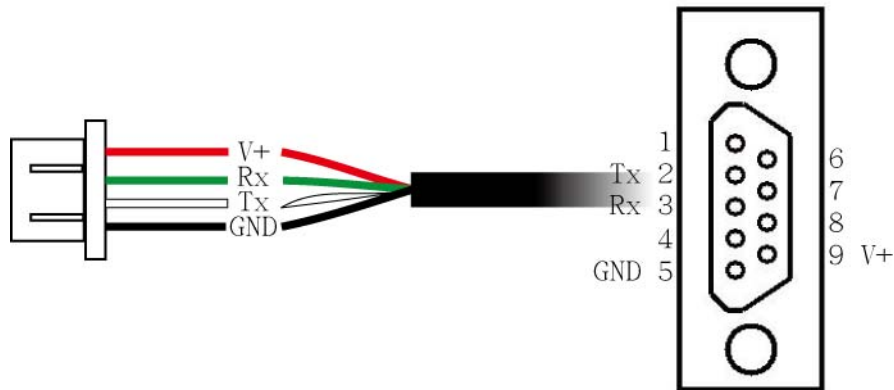


- Power/IO Cable * 1

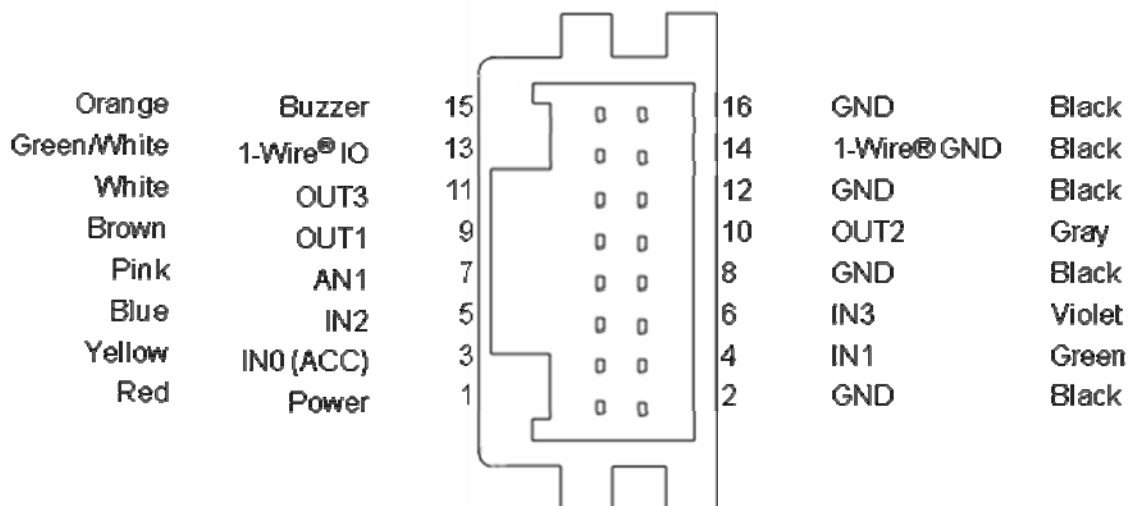


2.2. Pin Assignments

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



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.

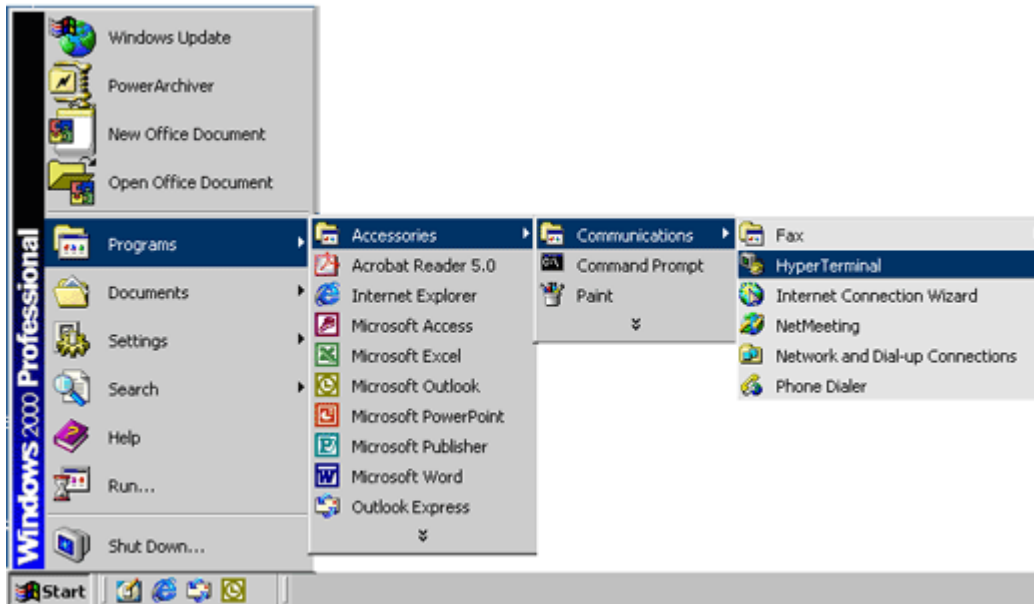
All outputs are open collector type (grounded when enabled).

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

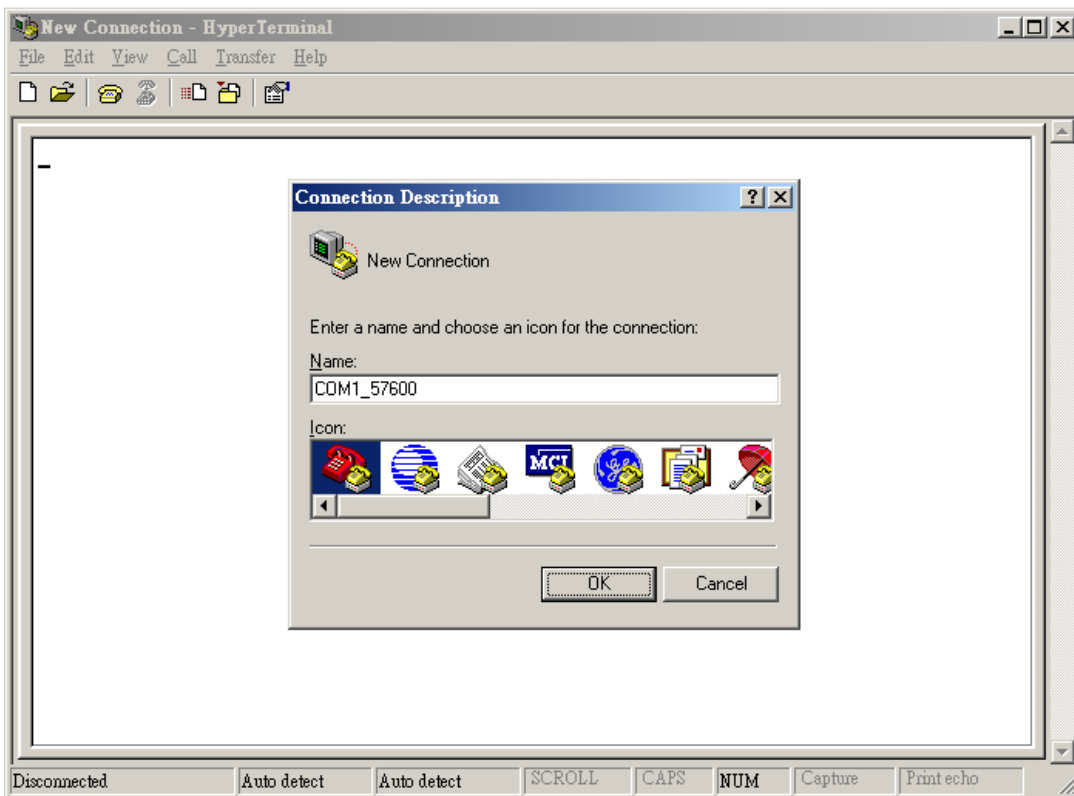
3. Firmware Upgrade

3.1. Firmware Upgrade by serial connection

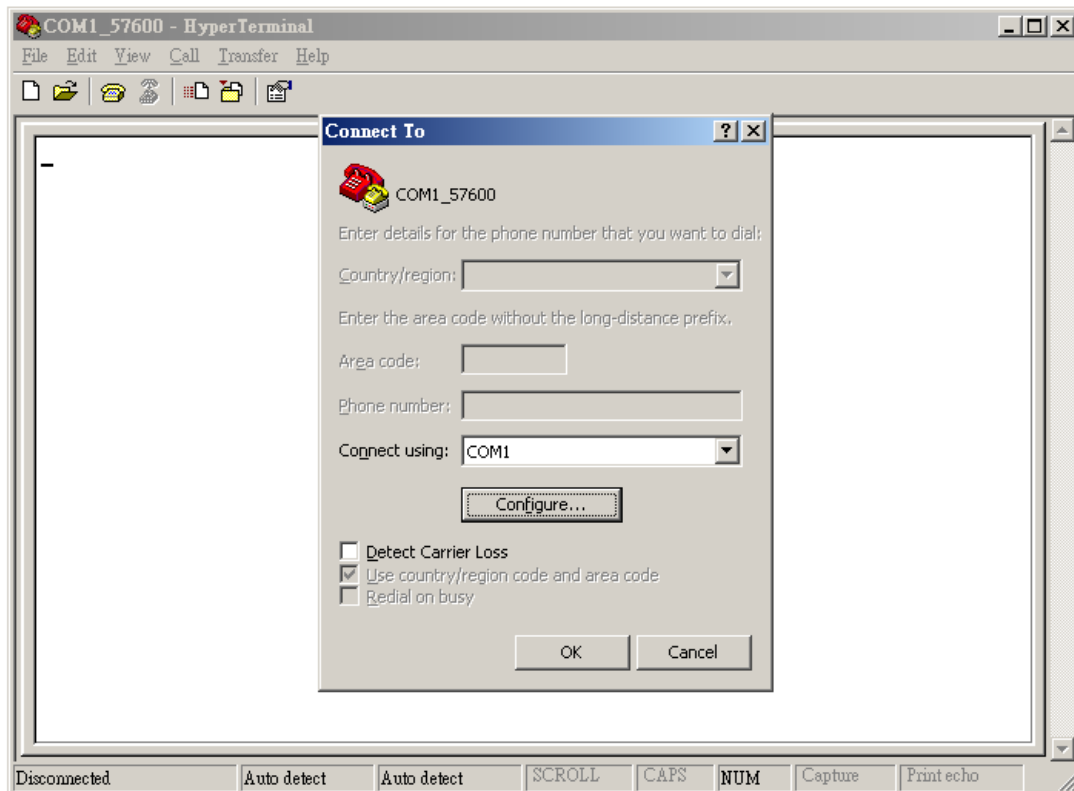
(1) Run HyperTerminal program



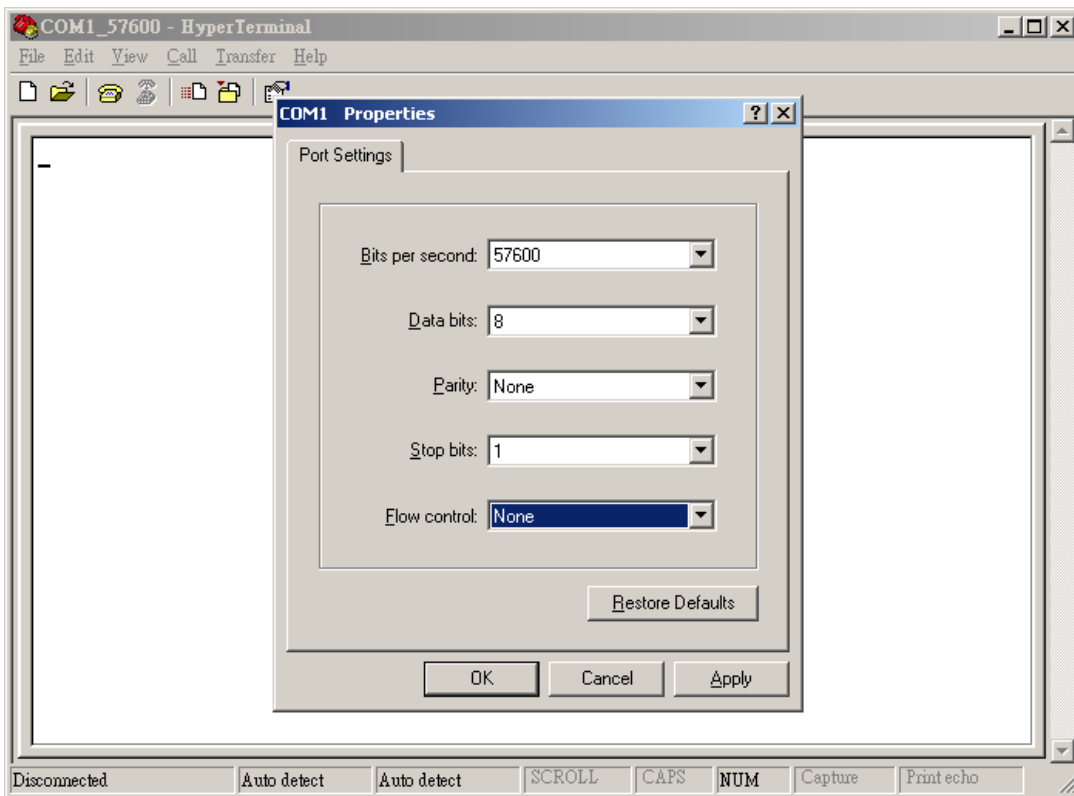
(2) Enter a name for the connection



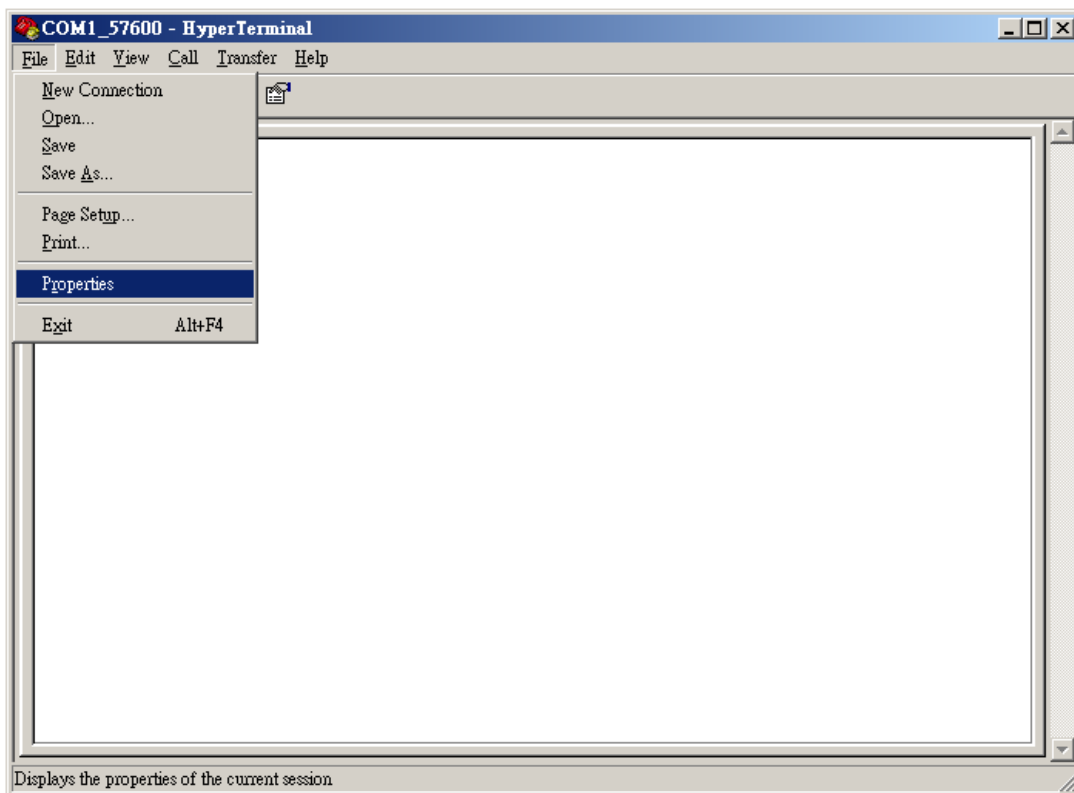
(3) Choose COM port and click [Configure...] button.



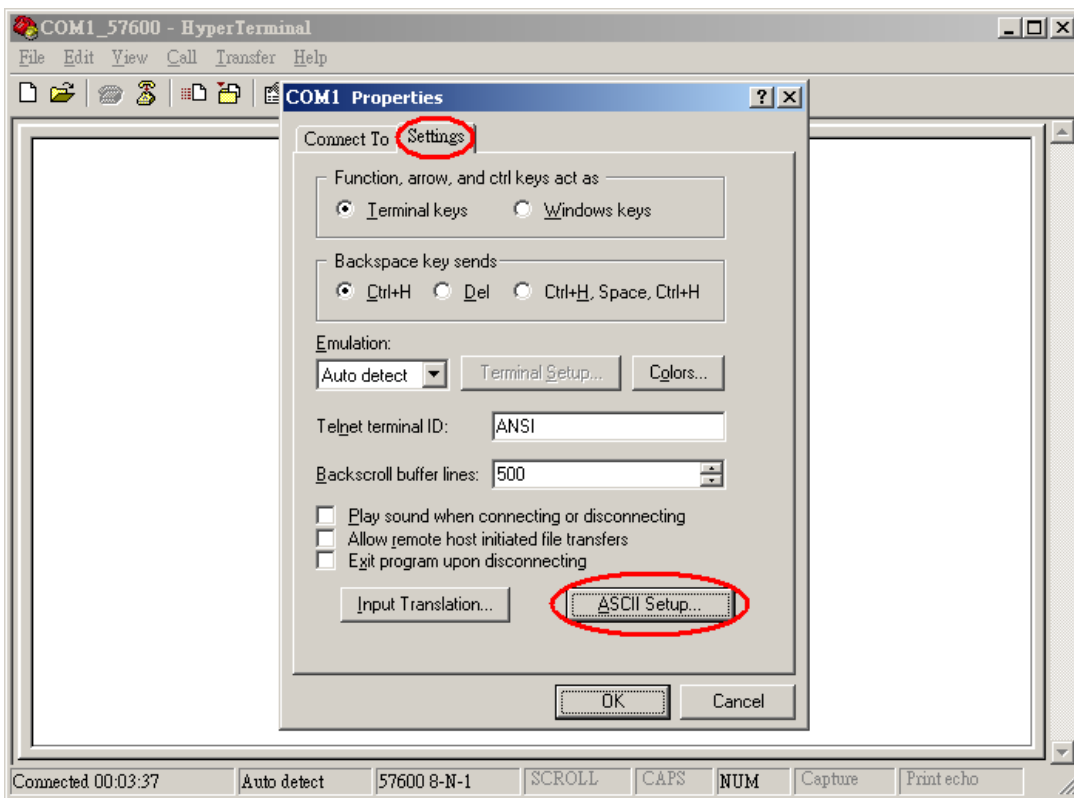
(4) Choose 57600,8,N,1 None flow control properties and click [OK] button.



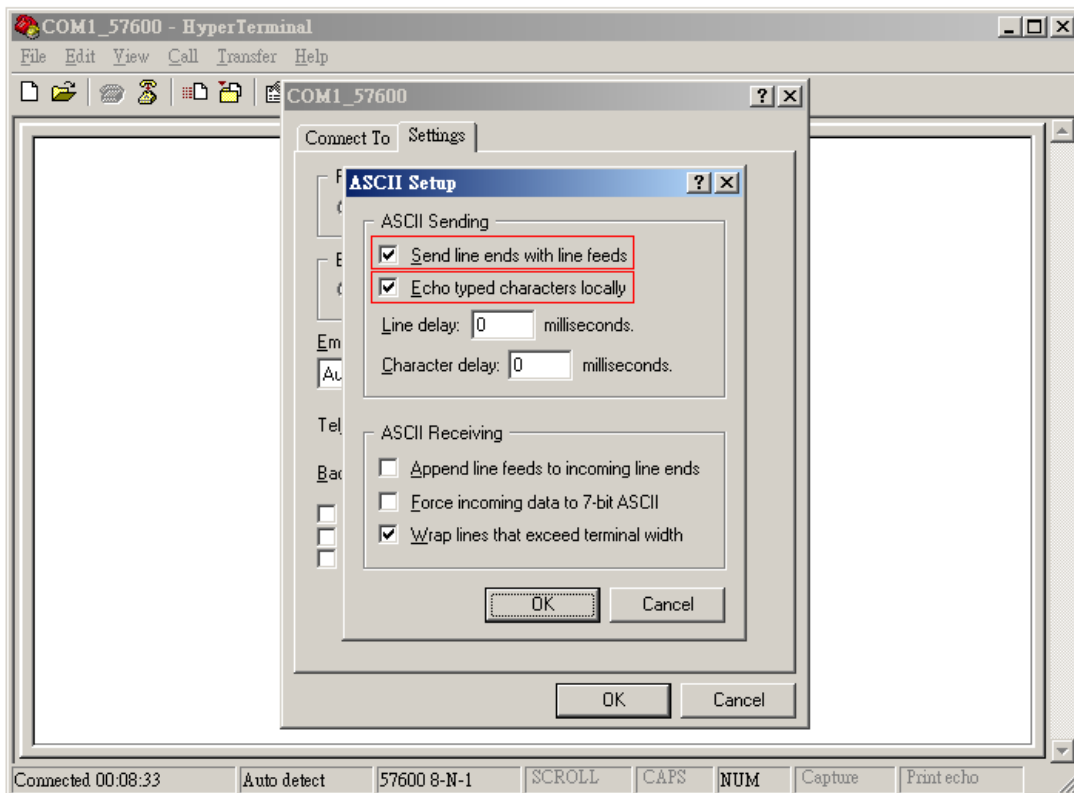
(5) Click [File]→[Properties]



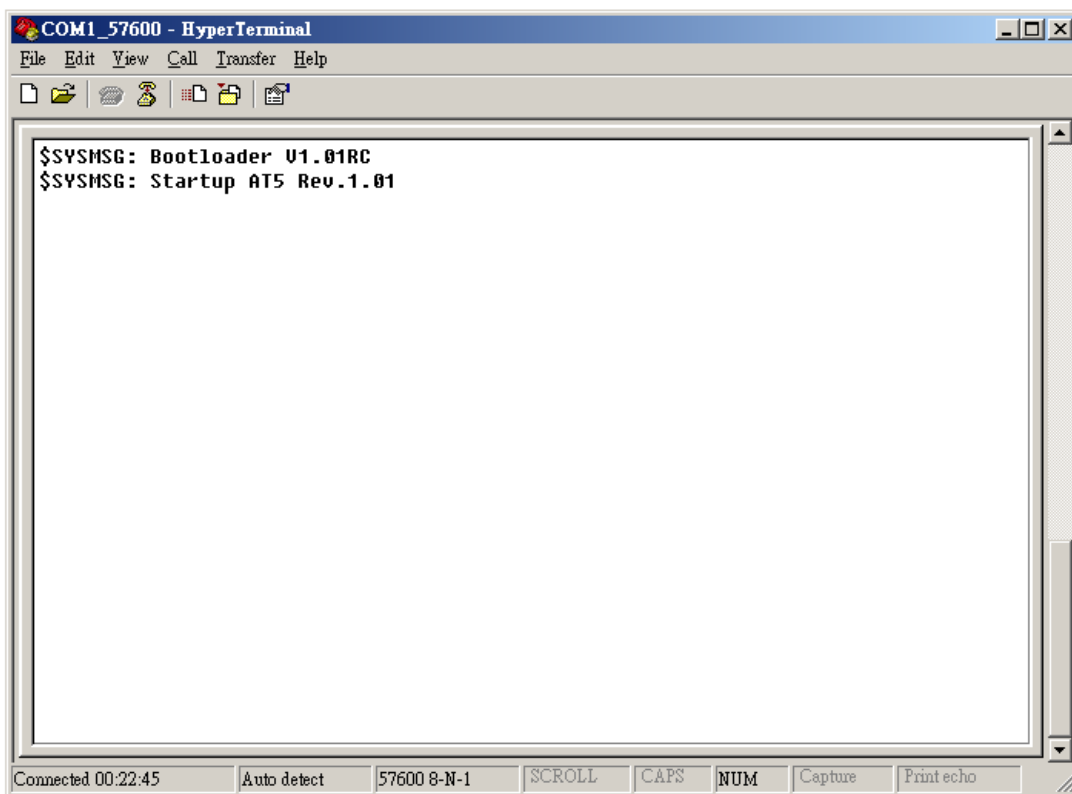
(6) Click [Settings] tab and [ASCII Setup...] button



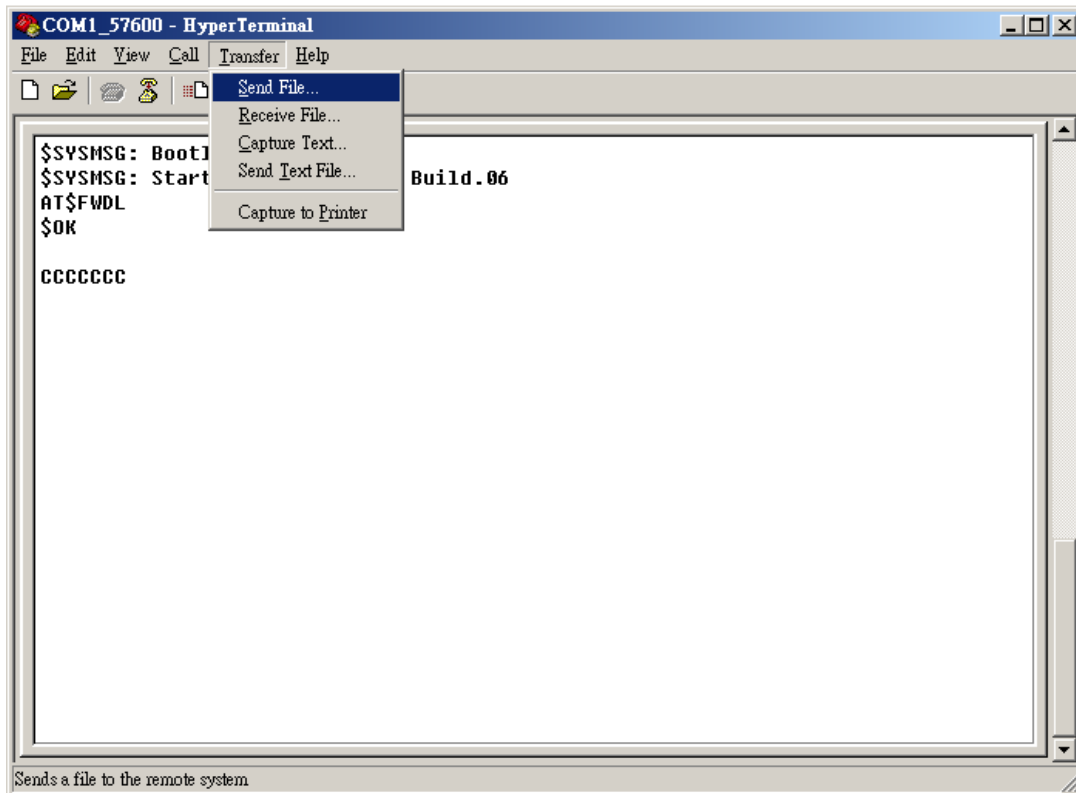
(7) Checked the following option and click [OK] button



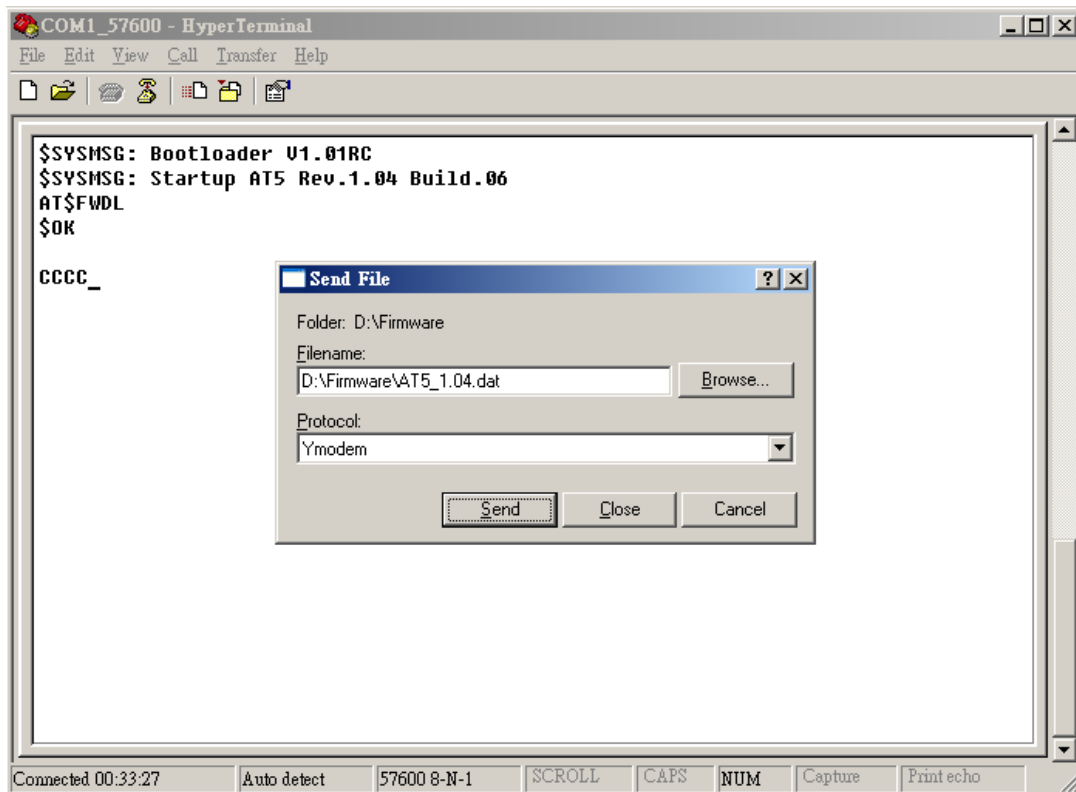
(8) Power ON the device. The startup message will show on the screen.



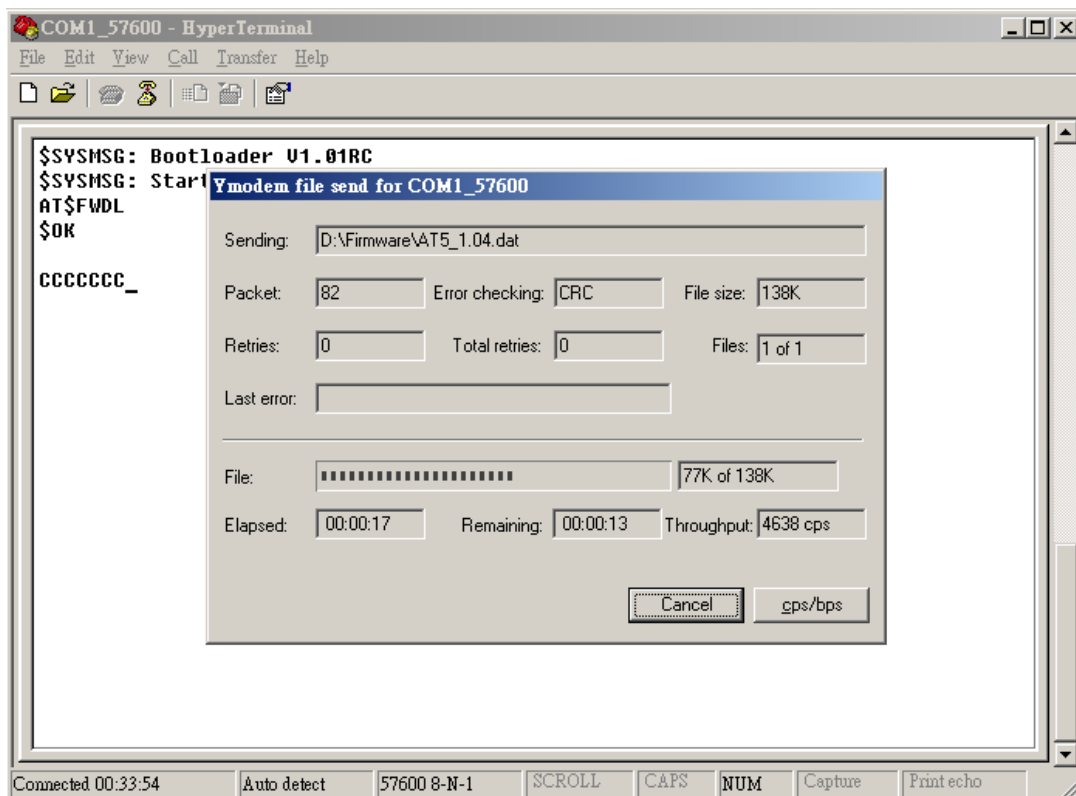
(9) Type "AT\$FWDL" command and press [Enter] key. Choose [Transfer]→[Send File...]



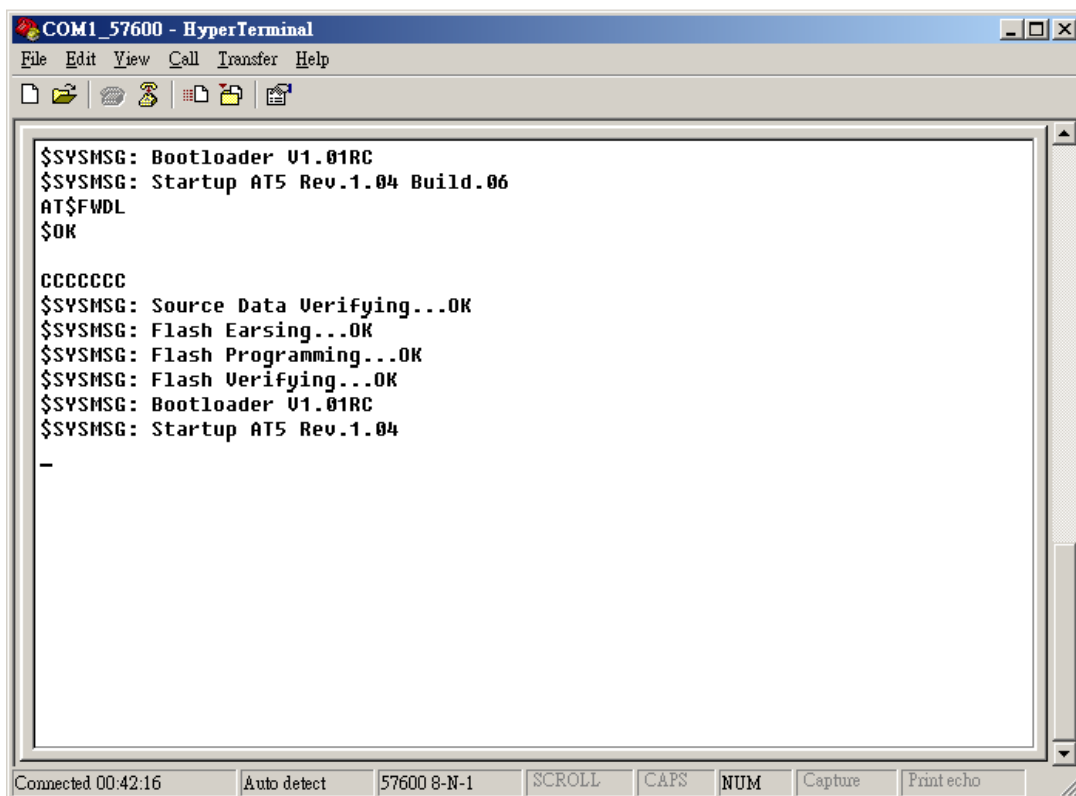
(10) Choose the firmware filename which is provided by ATrack and select [Ymodem] Protocol option and click [Send] button.



(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.

A screenshot of a HyperTerminal window titled "COM1_57600 - HyperTerminal". The window has a menu bar with "File", "Edit", "View", "Call", "Transfer", and "Help". Below the menu bar is a toolbar with icons for file operations and communication. The main text area displays the following output from an AT command:

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

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

The status bar at the bottom of the window shows "Connected 00:42:16", "Auto detect", "57600 8-N-1", and buttons for "SCROLL", "CAPS", "NUM", "Capture", and "Print echo".

4. Appendix

4.1. Hardware Specification

| AU5(i) | | |
|-------------------------------|-------------------|--|
| Physical Characteristics | | |
| Dimension | | 100 * 65 * 26 mm |
| GSM Module | | Quad band GSM 850/900/1800/1900 MHz Tri-band UMTS 850/1900/2100 MHz |
| GPS Module | | High Sensitivity (44 Channel) |
| GSM 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 | 80 mA @ 12VDC (Max. 200mA) |
| | Sleep | 18 mA @ 12VDC (Max. 100mA) |
| | Deep Sleep | 0.12mW |
| 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 (AT5i 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 radiated 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.