

CS501 GSM/GPRS/GPS Module for PDA User Manual

FCC Statement

FCC NOTICE: To comply with FCC part 15 rules in the United States, the system must be professionally installed to ensure compliance with the Part 15 certification. It is the responsibility of the operator and professional installer to ensure that only certified systems are deployed in the United States. The use of the system in any other combination is expressly forbidden.

I. Getting started

1) Check the hardware of CS501 and accessories are inside the box, it includes:

- CS501 module
- Power adaptor for charging CS501 module (DC 6V1A)
- SDIO Card for connecting CS501 module to PDA
- Li-ion Polymer Battery



CS501 Module



Power adaptor for CS501



Li-ion Polymer Battery

The hardware of CS501 is as below:



- 2) The CS501 module uses its own battery. It comes with a battery inside. Before your first time use of the CS501, please charge the module to full power. It normally takes around 2-2.5 hours for charging. To charge the module, open the blue cover at the bottom carefully and plug in the power adaptor. During the charging process, the red LED, charge indicator, will light up and after fully charge the red LED will turn off.



- 3) After about 2-2.5 hrs, the charging process finished. Remove the power adaptor and you can now start using the CS501 module.
- 4) First of all, insert the GSM/GPRS SIM card into the SIM card socket of CS501 as below picture.

CSL CS501 GSM/GPRS + GPS Module Quick Start guide

- a. Loose the two screws on the battery cover and remove the battery cover



- b. Take out the battery



c. Insert the GSM/GPRS SIM card into the SIM card socket.



5) After inserting the SIM card, close the battery cover and mount the two screws.

6) Mount the CS501 on PDA

a. Plug CS501 GSM module into the SD slot of PDA





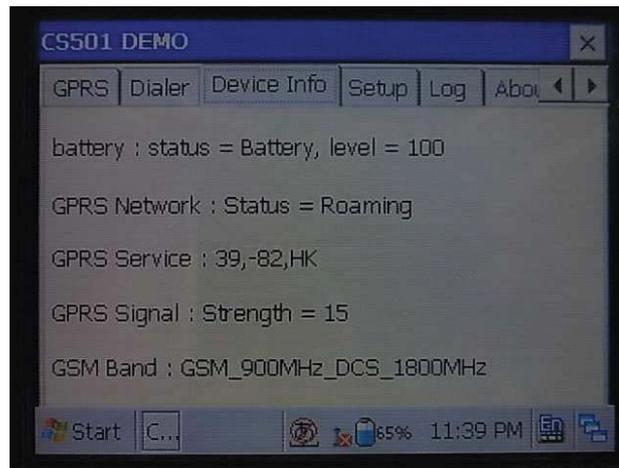
- 7) Power up the PDA.
- 8) On CS501 module, press the "ON/OFF" button for about 1 second to power it up. The green LED, network indicator, on CS501 will start blinking.
- 9) The green LED indicator will first blink quickly at the beginning (once per second). It means that it is searching for the GSM service provider. Once the service is found and registered, the green LED indicator will blink slowly (around once per 3 seconds).
- 10) After the GSM service is found, use the CS501 Demo Program on the PDA to evaluate its main features. The demo is called "CS501 DEMO" on the desktop. Launch it with a double click. Please refer to the next section for the detail operations of this demo program.
- 11) When done, close the demo program. Press and hold the "ON/OFF" button on the CS501 module for 2 - 3 seconds to power it off.

II. CS501 Demo Application Program

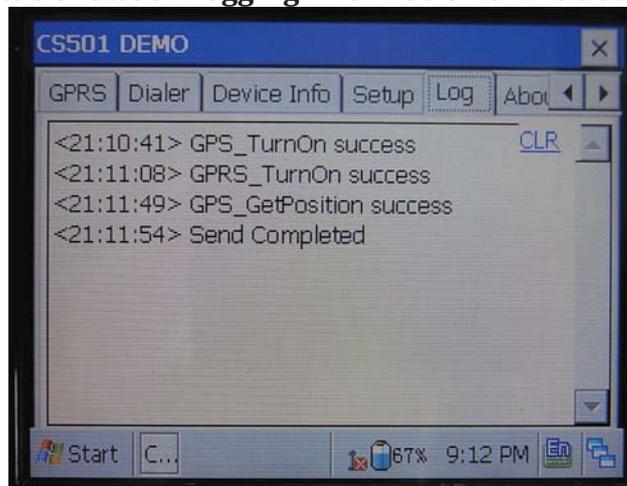
- 1) The CS501 comes with a demo application program that demonstrates the major functions of the module. It is inside the document CD provided in the box. The source code of the program is also included for user's own development.
- 2) The CS501 module document CD includes the following folders:
 - Bin: installer files for demo application programs
 - CS501 Driver: device driver of the CS501 module. Remember to install it on PDA.
 - CS501 PC Server: source code the CS501 PC side server program
 - Document: release note and user guide of CS501 demo program
- 3) Make sure the CS501 driver is installed on PDA. Go to "Start" -> "Settings" -> "Control Panel" -> "Remove Programs", make sure the item "Arasan Chip System COMBO-UART Driver" is installed. Otherwise, please install the CS501 Driver from the document CD.
- 4) To start the demo program, double click the icon "CS501 DEMO" on the desktop of PDA. If it is not on PDA, please install it again. The installer can be found from the document CD (inside "Bin\CS501 DEMO SETUP.CAB"). Make sure the CS501 is powered on with SIM card inserted.



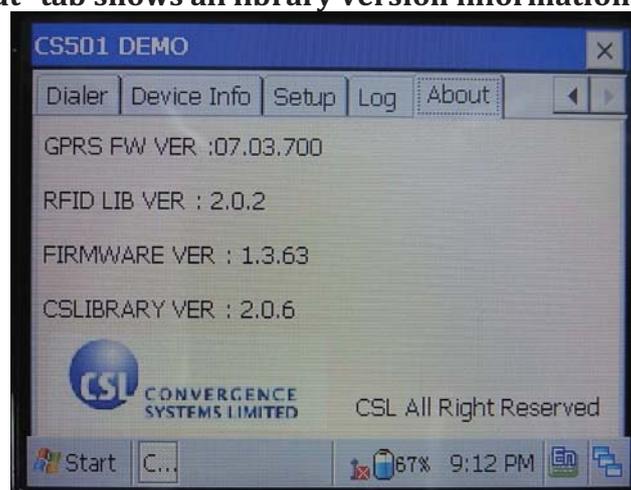
- 5) Go to "Device Info" tab. It shows the CS501 device status, including the battery status, power level (%) and GPRS network information.



6) The “Log” tab shows all logging information of the device.



7) The “About” tab shows all library version information.



- 8) Go to “GPS” tab. It is used for GPS configuration. Select the “ON” button to turn on GPS and then click “GetPosition” button to get the position data from GPS.



- 9) Go to “GPRS” tab. It is used for GPRS configuration.
- Input the “APN” .
 - Turn on the “GPRS” by selecting “ON” button.
 - Click “Get IP” button to get the IP from GSM provider.



- 10) Go to “Setup” tab. It is used for setup the GPRS and RFID reader parameters.



- a. Select "GSM" band, for example, in U. S. A, you should select "GSM_850MHz_PCS_1900MHz".
- b. Enter the IP address and TCP port number of the server on the Internet that will receive the data. The forwarding of the fixed IP (e.g. 118.23.103.25) of the server to the internal IP (192.168.14.225) via port (9091) is shown as the below

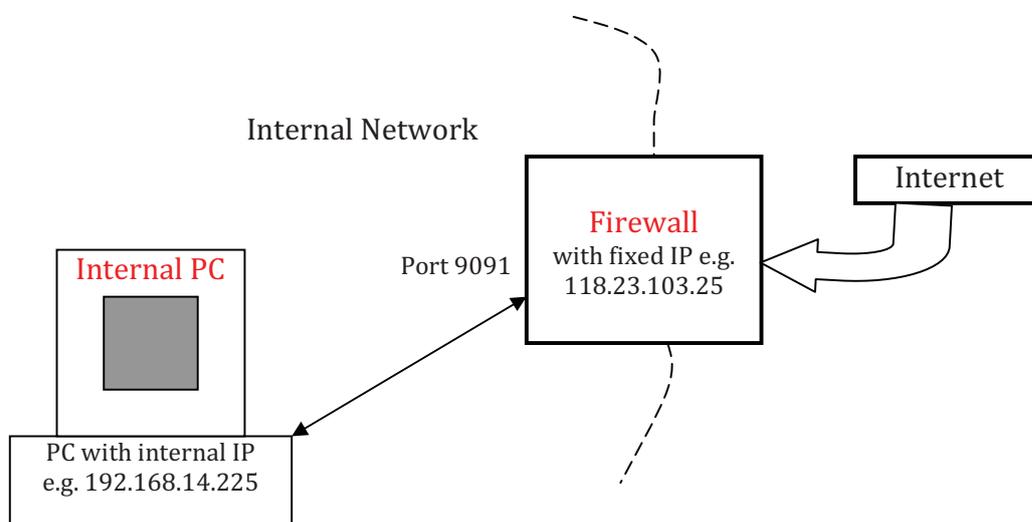
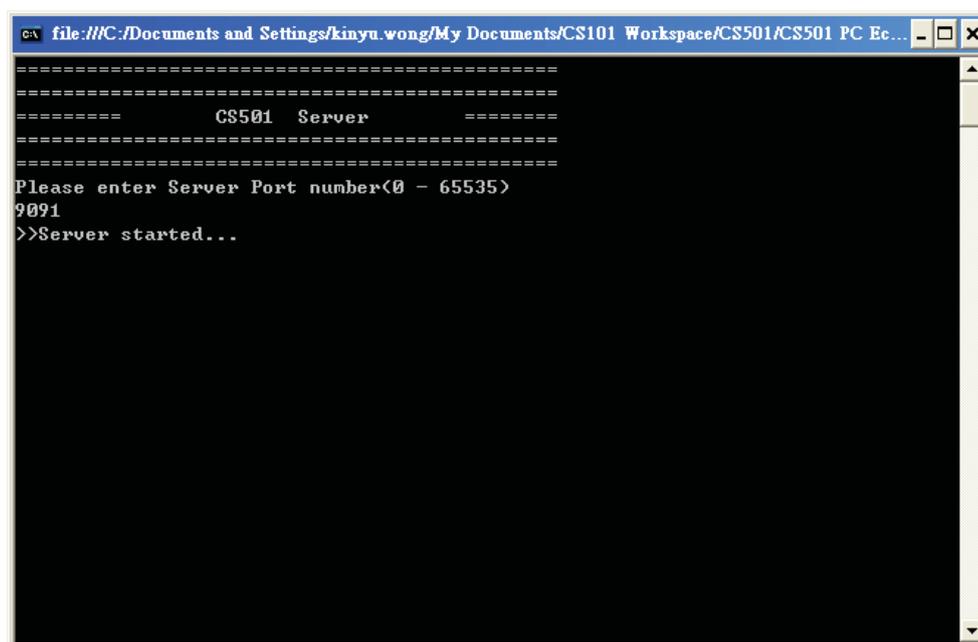


Fig. Forwarding fixed IP (118.23.103.225) to internal IP (192.168.14.225) Port: 9091

Normally, the MIS people need to set allow any traffic to enter the gateway, then port forward 9091 to the internal IP address (user computer's IP address).



The format of the data received is:

<EPC_ID>,<RSSI>,<UTC>,<latitude>,<longitude>,<hdop>,<altitude>,<fix>,<cog>
> , <spkm>,<spkn>,<date>,<nsat>

The fields contain the following information:

<EPC_ID>	EPC ID of the tag read
<RSSI>	RSSI value of the tag read
<UTC>: Hhmmss	(referred to GGA sentence) UTC of Position Values: hh (hour) 00 to 23 mm (minutes) 00 to 59 ss (seconds) 00 to 59
<latitude>: ddmm.mmmm N/S	(referred to GGA sentence) Values: dd (degrees) 00 to 90 mm.mmmm (minutes) 00,0000 to 59.9999 N/S: North / South
<longitude>: dddmm.mmmm E/W	(referred to GGA sentence) Values: ddd (degrees) 00 to 180 mm.mmmm (minutes) 00,0000 to 59.9999

E/W: East / West

<hdop>: x.x	(referred to GGA sentence) Horizontal Dilution of Precision
<altitude>: xxxx.x	(referred to GGA sentence) Altitude - mean-sea-level (geoid) (meters)
<fix>:	(referred to GSA sentence) 1 Invalid Fix 2 2D fix 3 3D fix
<cog>: ddd.mm	(referred to VTG sentence) Course over Ground (degrees, True) Values: ddd: 000 to 360 degrees mm 00 to 59 minutes
<spkm>: xxxx.x	(referred to VTG sentence) Speed over ground (Km/hr)
<spkn>: xxxx.x	(referred to VTG sentence) Speed over ground (knots)
<date>: ddmmyy	(referred to RMC sentence) Date of Fix Values: dd (day) 01 to 31 mm (month) 01 to 12 yy (year) 00 to 99 (2000 to 2099)
<nsat>: nn	(referred to GSV sentence) Total number of satellites in view

III. General guidelines and important things to know

- 1) Make sure the SIM card is inside the CS501 module before power it on.

- 2) Handle the blue covers on CS501 carefully.
- 3) When the battery charging process finish, there is no indication at the moment. Please unplug the power adaptor after around 2-2.5 hrs charging. Then, run the CS501 Demo program to check the battery level in "Device Info".
- 4) Note that the module will be powered off by pressing "Reset" button. You have to press the "ON/OFF" button again to turn the module on.
- 5) The trigger key on the handle is not implemented in the CS501 Demo Program. Please refer to the CS101 Demo Programs for programming the function of the trigger key and other hot keys.
- 6) On the PC side server program, make sure that the PC has a public IP address and the TCP port used is not blocked on the Internet or by firewall.
- 7) The complied installer (in folder "bin\") is for reader firmware v1.3.

For any question, please contact Convergence Systems Limited via email at techsupport@convergence.com.hk.

Federal Communications Commission Interference Statement

RF exposure information: To maintain compliance with FCC RF exposure requirements, use handset that maintain a 20cm separation distance between the user's body and the host.

MPE limit for RF exposure at prediction frequency is 0.558mW/cm² for GSM850MHz and 1mW/cm² for GSM1900MHz. The MPE for GSM850MHz is 0.47 mW/cm² and 0.31mW/cm² for GSM1900MHz. It satisfy RF exposure compliance.

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.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

NOTE: This equipment 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

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