

VNB Technologies

GSM Modem Specifications

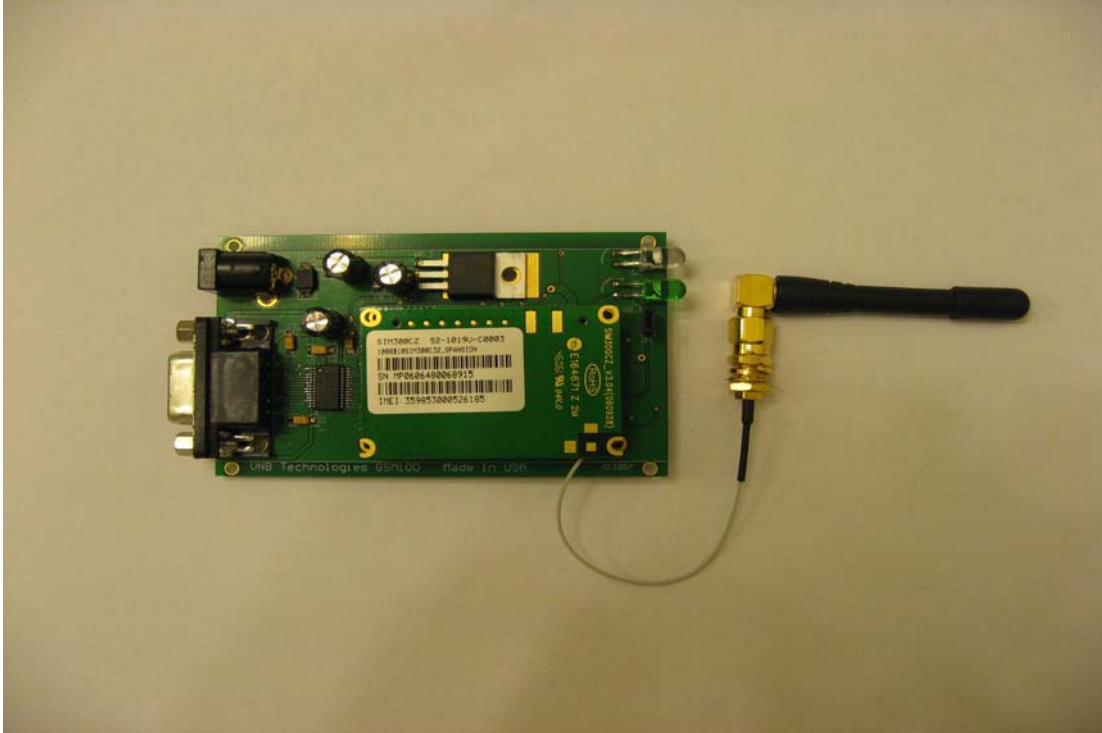


Figure 1: VNB GSM100 Modem (top view)

VNB GSM100 modem is suitable for the need of data transfer, SMS communication, GPRS data navigation, remote control. The modem has a small size that can interface with the PC, laptop, external peripheral device or embedded devices via RS232 port and AT command set. It is used SIM300c GSM tri-band module.

The application devices of this modem are : Wireless PSTN, Mobile Trunk, Telematics, Wireless Terminal, Alarm/Security System, Remote Control.

1. Features

- Support 900/1800/1900 MHz tri-band GSM/GPRS
- Support TCP/IP
- Support SMS data communication
- Support AT Command Set
- Status LEDs
- Industrial standard design, quality guarantee

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2. Specifications

- **Power Supply:** +12V-DC
- **Frequency bands:** EGSM 900, DCS 1800, PCS 1900. The band can be set by AT COMMAND, and default band is EGSM 900 and DCS 1800. Compliant to GSM Phase 2/2+
- **GSM class:** Small MS
- **Transmit power:** Class 4 (2W) at EGSM900, Class 1 (1W) at DCS1800 and PCS1900
- **Power Saving:** 2.5mA in SLEEP mode
- **GPRS connectivity:** GPRS multi-slot class 10, GPRS mobile station class B
- **Temperature range** Normal operation:-20 - +60°C), Storage temperature:-40 - +80°C
- **Data GPRS:**
 - GPRS data downlink transfer: max 85.6 kbps Insert SIM card to SIM card holder (optional for Real-Time track and wireless download)
 - GPRS data downlink transfer: max 85.6 kbps
 - GPRS data uplink transfer: max 42.8 kbps
 - Coding scheme CS-1, CS-2, CS-3 and CS-4 (see coding scheme table below)
 - Integrates the TCP/IP Protocol
 - Supports the protocol PAP (Password Authentication Protocol) usually used for PPP connections
 - Support Packet Switched Broadcast Control Channel (PBCCH)
 - CSD transmission rates: 2.4,4.8,9.6,14.4 kpps, non-transparent
 - Unstructured Supplement Services Data (USSD) support
- **SMS:**
 - MT, MO, CB, Text and PDU mode
 - SMS storage: SIM card
 - Support transmission of SMS alternatively over CSD or GPRS (user can choose preferred mode)
 - Unstructured Supplement Services Data (USSD) support
- **SIM interface:** supported SIM card 1.8V, 3V
- **Serial interface:**
 - RS232 port (DB-9 female)
 - Autobauding supports baud rate 1200 bps to 115200 bps
 - Two lines on serial port interface TXD and RXD
 - Transmitting AT command

- **Timer function:** Programmable via AT command
- **Antenna:** connected via 50 Ohm antenna connector or antenna pad
- **Audio Features:** interface is not available. However, upon request, hardware interface can be modified to support Speech Codec Modes (Half Rate ETS 06.20, Full Rate ETS 06.10, Enhanced Full Rate ETS 06.50/ 06.60/ 06.80, and Echo suppression
- **Firmware upgrade:** upgradeable over serial interface
- **Dimension:** 90.5mm x 55 mm

Table 1: Coding schemes and maximum net data rates over air interface

Coding scheme	1 Timeslot	2 Timeslot	4 Timeslot
CS-1:	9.05kbps	18.1kbps	36.2kbps
CS-2:	13.4kbps	26.8kbps	53.6kbps
CS-3:	15.6kbps	31.2kbps	62.4kbps
CS-4:	21.4kbps	42.8kbps	85.6kbps

Table 2: RF output power

Frequency	Max	Min
E-GSM900	33dBm ± 2db	5dBm ± 5db
DCS1800	30dBm ± 2db	0dBm ± 5db
PCS1900	30dBm ± 2db	0dBm ± 5db

Table 3: RF Receive sensitivity

E-GSM900	<-106 dBm
DCS1800	<-104 dBm
PCS1900	<-104 dBm

Table 4: Receive/Transmit Frequency

Frequency	Receive	Transmit
E-GSM900	925 ~ 960 MHz	880 ~ 915 MHz
DCS1800	1805 ~ 1880 MHz	1710 ~ 1785 MHz
PCS1900	1930 ~ 1990 MHz	1850 ~ 1910 MHz

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3. Interfaces

- Power input: DC 7-40V, 2A
- RS232 serial port (3.3V TTL voltage level or RS232 voltage level, 115200 bps, 8, 1, N, No hardware flow control)
- GSM antenna interface
- 2 LEDs: LED1: power status, LED2: network status
- SIM card holder (ESD protected)

4. Installation

- Open the package and take out all the GSM modem components (AC/DC power adapter, RS232 cable, antenna)
- Use small screw driver push in the tap to pop out the SIM card holder
- Insert the valid SIM card provided by GSM provider
- Attach the GSM antenna to the modem
- Mount the GSM modem at proper location where there is GSM signal
- Connect GSM modem with the data port of user's equipment (RS232 port of PC or laptop or embedded device for instance)
- Connect GSM modem DC power supply interface to DC power adapter (see above for power input choice). Notice that the user might have to wait for more than several seconds to see the LED lit or flashing.

5. Modem Basic Operation:

- Connect the modem to PC via RS232 cable
- Power on the modem (LED1 should be lit)
- Open HyperTerminal from Program → Accessories → Communication. Select the following parameters: COM1 (usually COM1 but might be different COM# depending on the user's equipment), 115200 bps, 8, 1, N, No hardware flow control.
- At this point, the modem is assumed to be properly connected and power, on the HyperTerminal screen
Type "AT" then press "Enter" key. The modem should response with "OK"

Examples are shown below

```
ATE0
OK
```

Other basic AT commands are listed in the table below:

Request	Type on HyperTerminal Screen	Expected Response
Query Signal Strength	“AT+CSQ”	+CSQ: 25,99
Text Mode Set Up	“AT+CMGF=1”	
SMS Phone Number	“AT+CMGS= 18583574392”	>
Send SMS text	“This is SMS sending test”	
Terminate	Press Ctrl and Z simultaneously	
Receive SMS text (assume SMS text message was received in location 01 in memory or SIM)	“AT+CMGR=01”	It is expected to see the received SMS text to be displayed on the screen

6. Contact information:

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In Vietnam, please contact our local VNBTECH members:

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7. Revision History

Date	Version	Description of change	Author
02/04/2007	1.0	Initial Release	TVN

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