CipherLab
Reference Manual

3G/GPRS Cradle

For 8 Series Mobile Computers

Version 1.03

CIPHER LAB

CIPHERLAB CO., LTD.
Website: http://www.cipherlab.com

IMPORTANT NOTICES

FOR USA

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.

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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

FOR EUROPE

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the R&TTE Directive 1999/5/EC:

- EN 60950-1: 2006+A11:2009+A1:2010+A12:2011+A2:2013

Safety of Information Technology Equipment

- EN 301 908-1 V6.2.1: 2013

Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 1: Harmonized EN for IMT-2000, introduction and common requirements, covering essential requirements of article 3.2 of the R&TTE Directive

- EN 301 908-2 V6.2.1: 2013

IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 2: CDMA Direct Spread (UTRA FDD) User Equipment (UE)

- EN 301 511 V9.0.2: 2003

- Global System for Mobile communications (GSM); Harmonized standard for mobile stations in the GSM 900 and DCS 1800 bands covering essential requirements under article 3.2 of the R&TTE directive (1999/5/EC)

-EN 301 489-1 V1.9.2: 2011

Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements

-EN 301 489-7 V1.3.1: 2005

ElectroMagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment ad services; Part 7: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)

-EN 301 489-24 V1.5.1: 2010

Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 24: Specific conditions for IMT-2000 CDMA Direct Spread (UTRA) for Mobile and portable (UE) radio and ancillary equipment

-EN 62311: 2008

Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz-300 GHz)

(IEC 62311:2007 (Modified))

SAFETY PRECAUTIONS

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

▶ The use of any batteries or charging devices, which are not originally sold or manufactured by CipherLab, will void your warranty and may cause damage to human body or the product itself.

▶ DO NOT disassemble, incinerate or short circuit the battery.

▶ DO NOT expose the scanner or the battery to any flammable sources.

▶ For green-environment issue, it's important that batteries should be recycled in a proper way.

▶ Under no circumstances, internal components are self-serviceable.

▶ The charging and communication cradle uses an AC power adapter. A socket outlet shall be installed near the equipment and shall be easily accessible. Make sure there is stable power supply for the mobile computer or its peripherals to operate properly.

CARE & MAINTENANCE

▶ This cradle is intended for indoor use only. It may do damage to the cradle when being exposed to extreme temperatures or soaked wet.

▶ When the body of the cradle gets dirty, use a clean and wet cloth to wipe off the dust. DO NOT use/mix any bleach or cleaner. Always keep the cradle dry.

▶ If you shall find the cradle malfunctioning, write down the specific scenario and consult your local sales representative.

RELEASE NOTES

Version	Date	Notes
1.03	Jan. 20, 2014	Designed with the antenna inside
1.02	Nov. 09, 2012	Add:
		▸ 3.1 Detect Baud Rate
		▸ AT Commands (AT+BAUD)
		Modification:
		▸ Main Menu pictures (with "DetectBaudRate" item) updated
1.01	May.25,2012	Add CE/IC Warning information
1.00	March.12,2012	Initial release

INTRODUCTION

Capable of charging the 3.7 V, 700 mAh Li-ion battery, the 3G/GPRS Cradle is specifically designed for 8000 Series Mobile Computers to connect to WWAN via 3G/GPRS or GSM data services.

This manual serves to guide you through how to install, configure, and operate the 3G/GPRS Cradle. We recommend you to keep one copy of the manual at hand for quick reference or maintenance purposes. To avoid any improper disposal or operation, please read the manual thoroughly before use.

Thank you for choosing CipherLab products!

3G/GPRS CRADLE
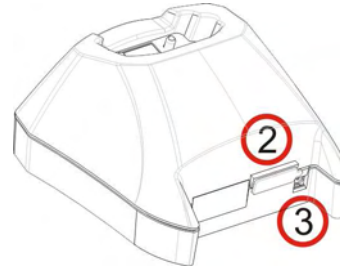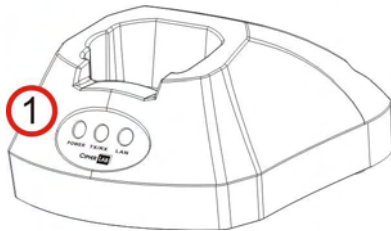
No.	Description	No.	Description
1	LED Indicators (POWER, TX/RX, LAN)	3	SIM Card Slot
3	Power Jack		

Note: It is recommended that the charging devices be operated at room temperature (18°C to 25°C) for optimal performance. The charging devices will not charge the battery when the temperature drops below 0°C or exceeds 40°C.

INSTALLATION

1) Remove the rubber cover at the back of the cradle.

2) Insert your SIM card and replace the rubber cover.

   The SIM card orientation is as shown in the illustration below, with contacts facing down. Refer to Chapter 3 Using 8000 to Configure 3G/GPRS Cradle.

3) Seat the mobile computer in the cradle.

4) Connect the power supply cord to a suitable power outlet, and the cradle's POWER indicator will become red. The cradle is ready for charging the mobile computer.
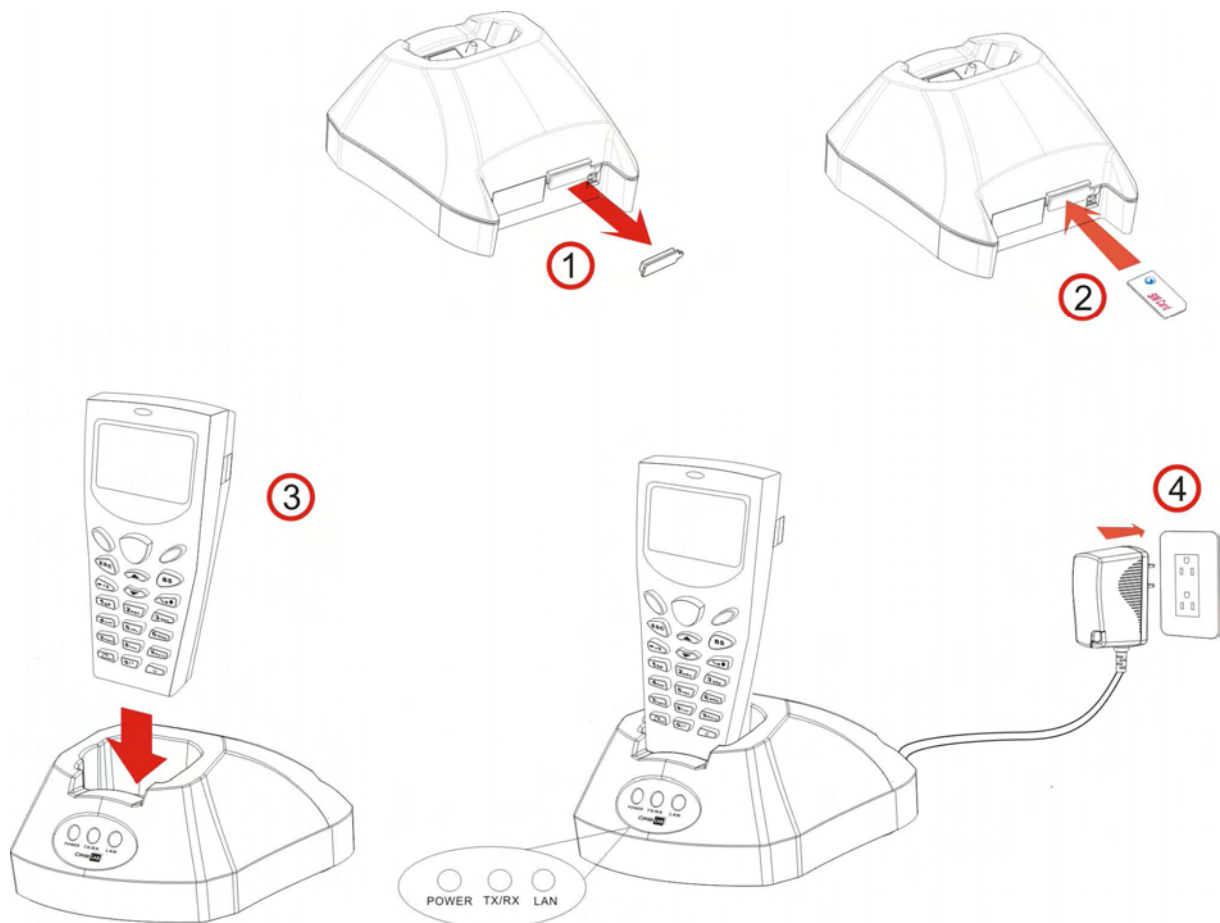
Note: You need to take out your SIM card when it is not in use. Always disconnect the power supply before removing the SIM card.

HARDWARE FEATURES

GPRS Cradle:

▶ Quad-band EGSM 850/900 MHz and GSM 1800/1900 MHz

▶ GPRS multi-slot Class 10

▶ Full PBCCH support

▶ Comply with GSM phase 2/2+

3G/GPRS Cradle:

▶ WWAN – 3.75G UMTS/HSUPA

▶ Supported Bands

- HSUPA: 850/900/AWS/1900/2100

- GSM/GPRS/EDGE: 850/900/1800/1900

▶ Technology Supported

- HSUPA Release 6

- GPRS/EDGE Multislot class10

- GSM CS SMS

Note: Depending on carrier support.

IN THE PACKAGE

The following items are included in the package. Save the box and packaging material for future use in case you need to store or ship the cradle.

▶ 3G/GPRS Cradle, complete set including power adapter and supply cord

▶ Quick Start Guide

Note: This manual is included in the Product CD shipped with CipherLab related products.

USING 3G/GPRS CRADLE

The 3G/GPRS Cradle is a charging & communication cradle, specifically designed for connecting CipherLab 8000 Series Mobile Computers to WWAN via 3G/GPRS or GSM data services. Refer to Appendix I Programming Support.

This chapter explains the working mode supported by the 3G/GPRS Cradle. For quick deployment, we provide a utility (.SHX) that can be downloaded to your mobile computer and used to configure, test, and upgrade firmware of as many cradles as you have. Refer to Chapter 3 Using 8000 to Configure 3G/GPRS Cradle and Chapter 4 Upgrading Firmware.

Please contact your Internet service provider (ISP) or network operator for information on 3G/GPRS related settings, such as

▶ APN (name of access point that connects the mobile network to the Internet)

▶ IP address (DHCP or static)

▶ User name and password (may be optional, depending on Challenge-Handshake Authentication Protocol)

Note: It is recommended that the charging devices be operated at room temperature (18°C to 25°C) for optimal performance. The charging devices will not charge the battery when the temperature drops below 0°C or exceeds 40°C.

1.1 WORKING MODE

1.1.1 MODEM MODE

It works as a 3G/GPRS modem. Refer to Chapter 2 How Modem Mode Works
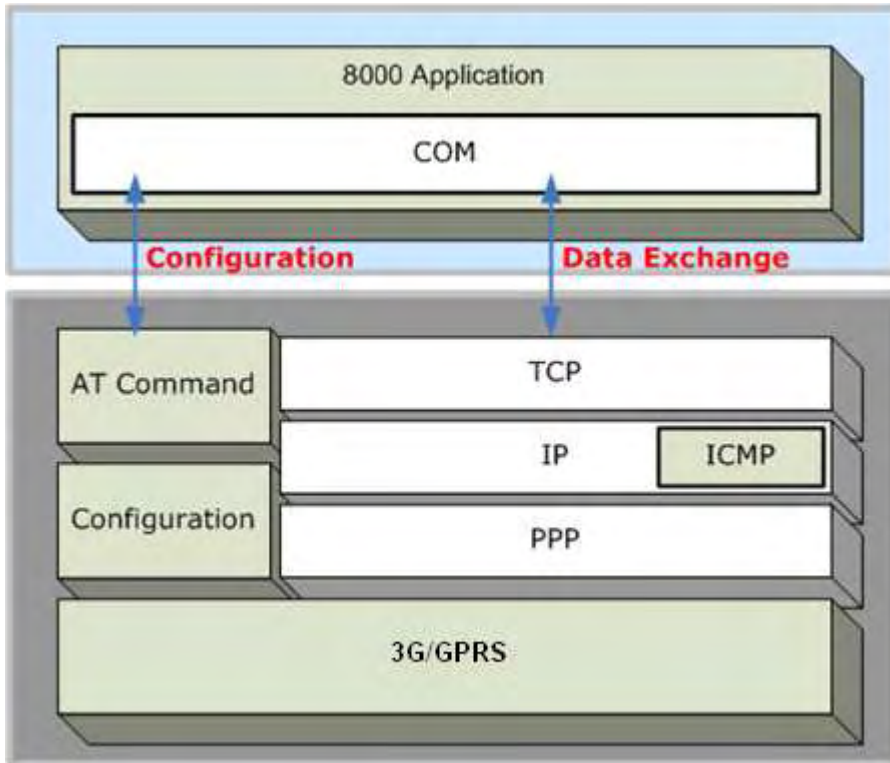
1.2 UNDERSTANDING STATUS INDICATORS

The cradle provides three LED indicators on the front panel to indicate status. Refer to Chapter 2 How Modem Mode Works for information on the initialization stages after powering on the cradle.

Normally, when the power cord is good and properly connected, the POWER indicator will become solid.

POWER	TX/RX	LAN	STATUS
Solid Red	--	--	Power on
Off	--	--	Power off
Solid Red	Flashing Green	Flashing Green	Initializing
Solid Red	Off	Slow Flashing Green (1s period)	Standby
Solid Red	Flashing Green	Off	Initialization Error
Solid Red	Off	Fast Flashing Green (0.3s period)	Dialing Out
Solid Red	Off	Solid Green	Connected
Solid Red	Flashing Green	Solid Green	Data Transferring

HOW MODEM MODE WORKS

Referring to the flow chart on the next page, the TX/RX and LAN indicators are used to indicate a specific stage of initialization, data connection, as well as firmware download. They are explained below (by number).

1) Initializing

   After powering on, the TX/RX and LAN indicators will flash in turn at the time interval of 0.25 seconds for 30 seconds, indicating the cradle is in initialization process.

2) Initialization OK

   If initialization is done successfully, the LAN indicator will flash at the time interval of 1 second, waiting for AT commands.

3) Initialization NG

   If initialization fails, the TX/RX indicator will flash at the time interval of 0.5 seconds, indicating an error occurs. For example, it might fail to pass PIN authentication, the signal strength is weak for the network, the Access Point name is incorrect, etc. For details on the specific initialization error, use "AT+ERR?" to get the error code. Although initialization fails, the cradle can still accept AT commands. In case of the "ATDT" command, it will re-initialize before dialing out.

4) Dialing out

   When in Dial mode (ATDT), the LAN indicator will flash at the time interval of 0.3 seconds for 20 seconds.

5) Connected

   When in Dial mode (ATDT), the LAN indicator will become green after successfully establishing a connection.

6) Data Transmission

   When in Dial mode (ATDT), the TX/RX indicator will flash as long as data transmission occurs.

7) Download Ready/Downloading

   When in Download mode (AT+DOWNLOAD), the TX/RX and LAN indicators will flash to indicate the cradle is ready for downloading or downloading is in progress.
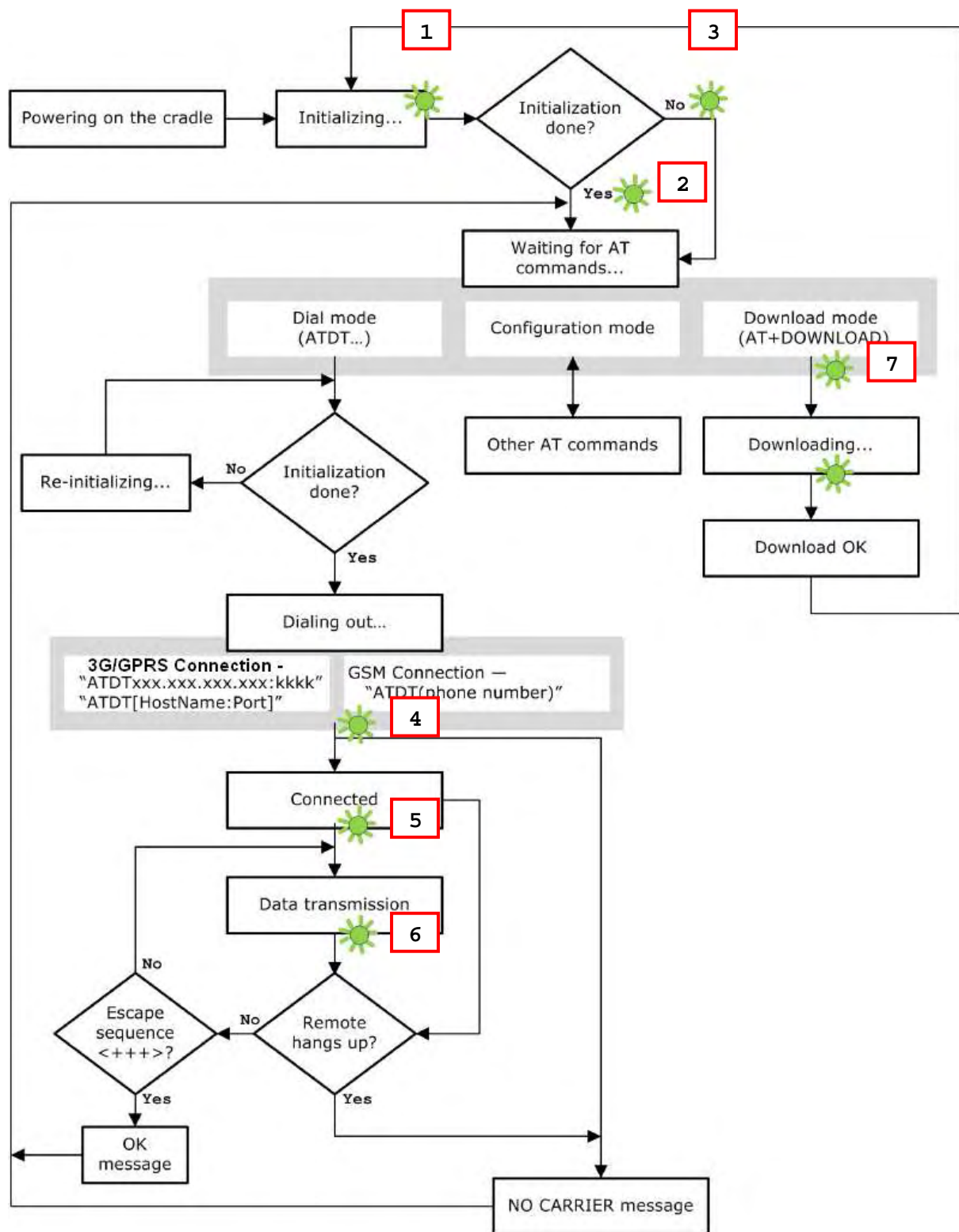
2.1 DIALING OUT

When the mobile computer is seated in the cradle, it can send the collected data back to a remote server, as well as download lookup files, via GSM or 3G/GPRS.

When dialing out (ATDT), the LED of LAN will flash at the time interval of 0.3 seconds for 20 seconds. When connected, the LED of LAN will become green after successfully establishing a connection. The LED of TX/RX will flash as long as data transmission occurs.

Note: It is suggested to issue the command "AT" every five seconds for best practice, in order to check whether the mobile computer is seated in the cradle.
The escape sequence, consisting of three characters "+++", is used to terminate the data connection.

2.1.1 GSM CONNECTION

When initialization is done, issue ATDT(phone number) to establish data connection via GSM.

Note: GSM support is dependant on your Network operator and your ISP. Typically GSM is used with 2G SIM cards.

2.1.2 3G/GPRS CONNECTION

When initialization is done, issue ATDTxxx.xxx.xxx.xxx:kkkk or ATDT[HostName:Port] to establish data connection via 3G/GPRS. The buffer size of the cradle is 1460 bytes, and data packet will be sent out as long as it satisfies any of the following requirements:

▶ buffer is full (= maximum packet size is 1460 bytes)
▶ delimiter character is encountered
▶ end of transmission timeout (= no transmission for 5 milliseconds)

2.2 CONFIGURING THE CRADLE

Regardless of the result of initialization, you can issue AT commands to configure the cradle, such as

▸ Perform the echo test between the mobile computer and the cradle.
▸ Write the current settings to flash or load factory defaults.
▸ Get the hardware version (Serial Number) or firmware version of the cradle.
▸ Set PIN authentication, enable or disable.
▸ Change PIN code of SIM card.
▸ Send delimiter during data transmission.
▸ For 3G/GPRS connection — Change Access Point name, apply Challenge-Handshake Authentication Protocol (CHAP), and so on.

2.2.1 GENERAL SETTINGS

AT Commands	Description	GSM	3G/GPRS
AT	Get echo from the cradle.	√	√
ATF	Load factory defaults.	√	√
ATW	Write the current settings to flash.	√	√
AT+KVER?	Get the firmware version of the cradle kernel program.	√	√
AT+SN?	Get the serial number of the cradle.	√	√
AT+VER?	Get the firmware version of the cradle user program.	√	√
AT+CGSN?	Get the IMEI number.	√	√
AT+BAUD=	Set Baud rate (only for 3G Cradle)	√	√

2.2.2 CONNECTION SETTINGS

AT Commands	Description	GSM	3G/GPRS
AT+CLCK=SC, 2	Get the information about whether PIN authentication is applied to the facility lock of SIM card.	√	√
AT+CLCK=SC, <Parameter>, <PIN>	Set PIN authentication, enable or disable.	√	√
AT+CPIN?	Get the information about whether PIN or PUK code is required.	√	√
AT+CPIN=	Set PIN code for authentication.	√	√
AT+CPWD=SC	Change PIN code of SIM card.	√	√
AT+DLMT?	Get the delimiter check status, as well as the delimiter character if in use.	√	√
AT+DLMT=	Set the delimiter check, enable or disable.	√	√

AT+APN?	Get the Access Point Name (APN) currently in use.		√
AT+APN=	Set the Access Point Name (APN) you want to connect to.		√
AT+CHAP?	Get the Challenge-Handshake Authentication Protocol (CHAP) setting.		√
AT+CHAP=	Set the Challenge-Handshake Authentication Protocol (CHAP) setting, enable or disable.		√
AT+DHCP?	Get the Dynamic Host Configuration Protocol (DHCP) setting.		√
AT+DHCP=	Set the Dynamic Host Configuration Protocol (DHCP) setting, enable or disable.		√
AT+IP?	Get the fixed IP address of the cradle.		√
AT+IP=	Set the fixed IP address of the cradle.		√
AT+PSW?	Get the password for Challenge-Handshake Authentication Protocol (CHAP).		√
AT+PSW=	Set the password for Challenge-Handshake Authentication Protocol (CHAP).		√
AT+USER?	Get the user name for Challenge-Handshake Authentication Protocol (CHAP).		√
AT+USER=	Set the user name for Challenge-Handshake Authentication Protocol (CHAP).		√

USING 8000 TO CONFIGURE 3G/GPRS CRADLE

For deployment engineers, download the runtime program "8000Deploy3G.shx" to the mobile computer, and then use it to deploy a set of standard settings to the cradle, as well as perform functionality testing.

1) Run one of the CipherLab download utilities on your desktop computer, for example, "ProgLoad.exe". Choose the correct interface, COM port, baud rate, file type, and browse the file system to locate the utility "8000Deploy3G.shx".

2) Press [8]+[Power] on the mobile computer to turn it on and access the Program Manager menu.

    You may download the program directly to the active memory sector "ACT", or to an empty sector and activate the program later. Choose the correct interface and baud rate that match the settings on your desktop computer.

3) Upon completion of the download process, you have to activate the program if it is downloaded to an empty sector.

4) The program "8000Deploy3G.shx" will start itself in a few seconds.

5) Set Baud rate, if necessary (please refer to 3.1 Detect Baud Rate).

6) Go to **2. Settings | 2. Configure** to configure cradle settings, such as PIN code, name of access point, etc.
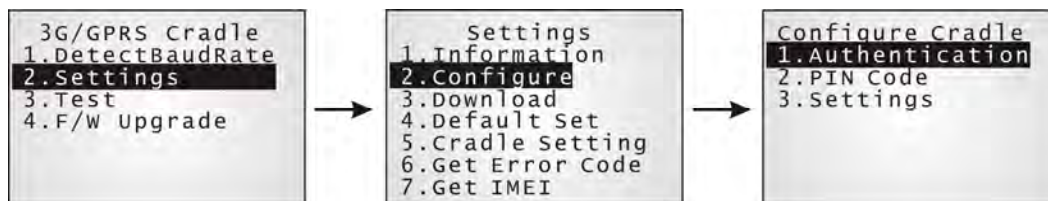
Note: You must input the correct PIN code even though authentication is disabled!

You can check all these settings via **2. Settings | 1. Information**.
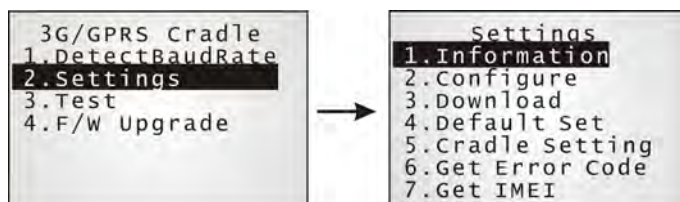
Go through the following steps with each cradle:

7) Connect the power supply cord to a suitable power outlet.

Note: After powering on, the POWER indicator will become red. The TX/RX and LAN indicators will flash in turn at the time interval of 0.25 seconds for 30 seconds, indicating the cradle is in initialization process. Then, TX/RX indicator will keep on flashing, indicating a failure in initialization due to lack of SIM card. Ignore it!

8) Seat the mobile computer in the cradle.

Go to **2. Settings | 4. Default Set** to reset the cradle.
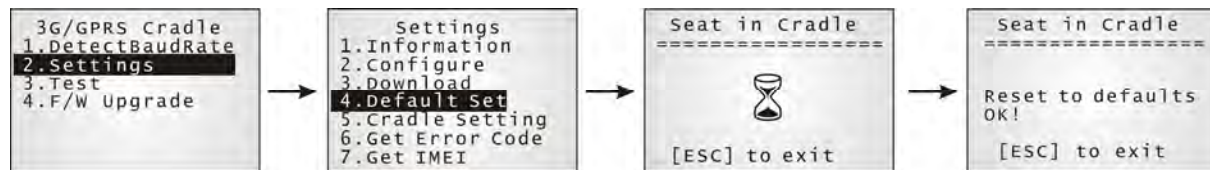
9) Disconnect the power supply cord.

10) Insert SIM card to the cradle.

11) Re-connect the power supply cord.

Note: After powering on, the POWER indicator will become red. The TX/RX and LAN indicators will flash in turn at the time interval of 0.25 seconds for 30 seconds, indicating the cradle is in initialization process. Then, the LEDs will flash differently according to the status: (1) If the TX/RX indicator flashes, it means initialization failed due to incorrect PIN; (2) If the LAN indicator flashes, it means initialization is done successfully, either with correct PIN or PIN not required at all.

12) Go to **2. Settings | 3. Download** to download your settings to the cradle.
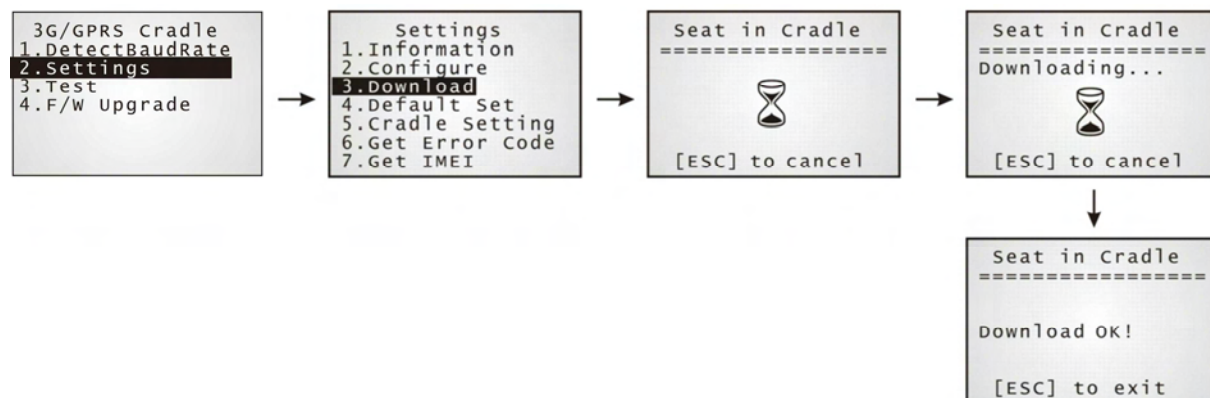
I3) Disconnect the power supply cord.

I4) Re-connect the power supply cord.

Note: After powering on, the POWER indicator will become red. The TX/RX and LAN indicators will flash in turn at the time interval of 0.25 seconds for 30 seconds, indicating the cradle is in initialization process. Then, the LEDs will flash differently according to the status: (1) If the TX/RX indicator flashes, it means initialization failed due to incorrect PIN; (2) If the LAN indicator flashes, it means initialization is done successfully, either with correct PIN or PIN not required at all.

I5) Perform echo tests if necessary.

3.1 DETECT BAUD RATE

3G Cradle with firmware version 1.03 or later provides users with the function to switch between Baud rates (57600 or 115200 bps). The default value is 57600bps; users can set Baud rate to 115200bps for greater amounts of data transmission.

Select **1. DetectBaudRate** on the main menu.
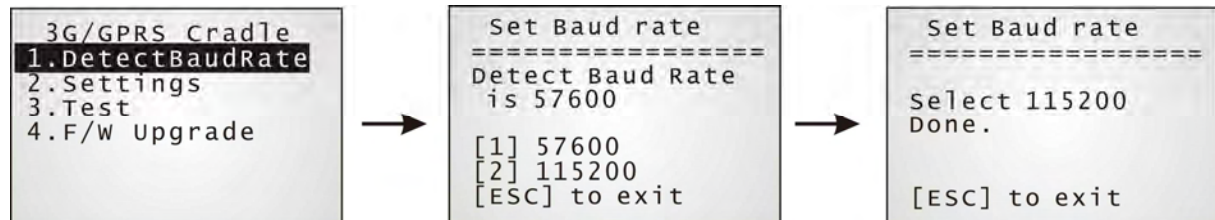
After entering the "DetectBaudRate" item, the mobile computer will detect and display the current Baud rate. Press the [1] or [2] key to select the corresponding Baud rate, or press the [ESC] key to back to the previous menu.

After the [1] or [2] key is pressed, the message shows up indicating Baud rate setting is done. Once the Baud rate setting is changed, system will immediately have the setting take effect and save it. Next time the device will power up with the new setting.

3.2 VIEW THE SETTINGS

3.2.1 PREVIEW THE NEW SETTINGS

In order to double-check the cradle configuration you are working on, information of the new settings can be previewed here. Press the Up or Down key to turn pages.

```
 3G/GPRS Cradle            Settings              PIN: Enable
1.DetectBaudRate      1.Information              Current:
2.Settings            2.Configure                     New:
3.Test                3.Download                 APN:
4.F/W Upgrade         4.Default Set
                      5.Cradle Setting           CHAP: Disable
                      6.Get Error Code           [DOWN]        Next
                      7.Get IMEI                 [ESC]         Exit


                                                 CHAP Username:

                                                 CHAP Password:

                                                 [UP/DOWN]     Next
                                                 [ESC]         Exit


                                                 DHCP: Enable

                                                 IP(static):
                                                 0.0.0.0

                                                 [UP]          Next
                                                 [ESC]         Exit
```
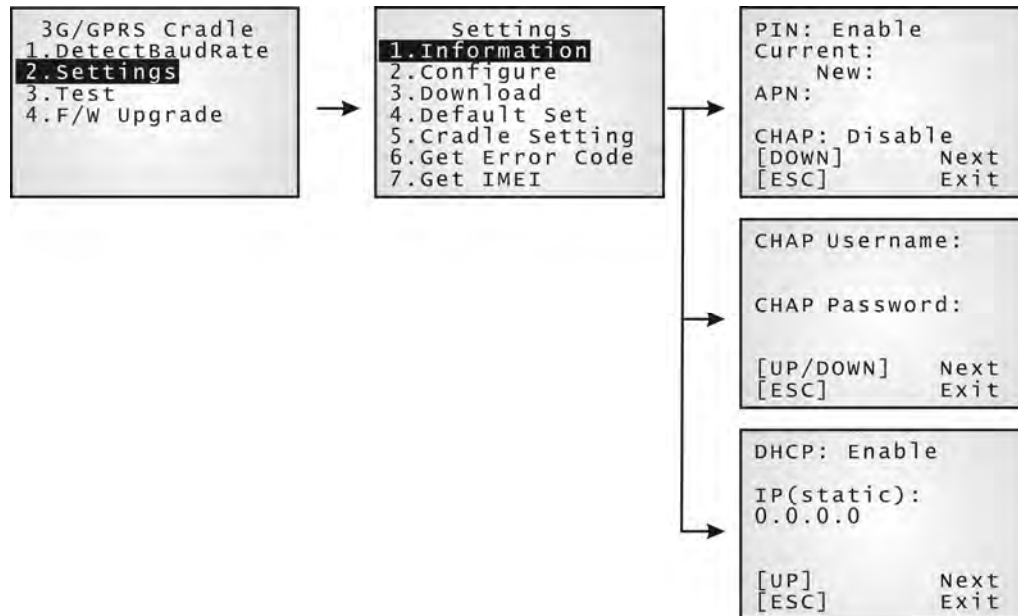
PIN (for authentication)

When enabled, it means you need to provide PIN code for authentication while connecting the cradle to a GSM or 3G/GPRS network. If the current and new PIN codes are blank, you have to input the PIN code via the Configure menu.

When disabled, it means authentication is disabled; however, you still have to input the correct PIN code as the current one in use.

APN

Name of access point that connects the mobile network to the Internet — For establishing a 3G/GPRS connection, you have to provide the access point name.

CHAP

Challenge-Handshake Authentication Protocol — When enabled, user name and password are required.

DHCP

When enabled, DHCP server is in use.

When disabled, you have to specify a static IP address for the cradle.

Note: You must input the PIN code even though authentication is disabled!
The default PIN, APN, CHAP, as well as IP settings should be obtained from your Internet service provider (ISP) or network operator.

3.2.2 VIEW THE CURRENT CRADLE SETTINGS

You may like to find out the current cradle settings, before or after configuring the cradle. Such information is especially helpful when you fail to configure the cradle.
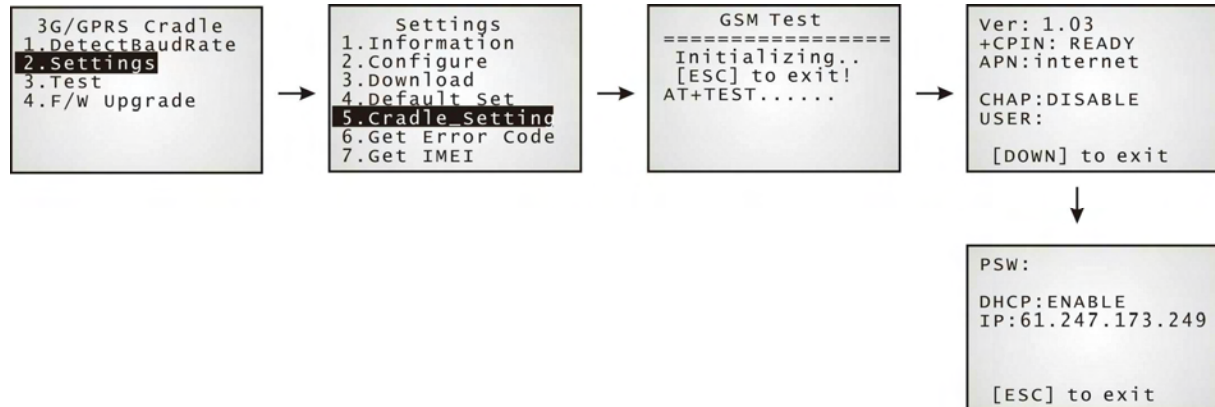
Ver: (version number)

The current firmware version of user program and cradle kernel program. Refer to AT+VER and AT+KVER.

+CPIN: (status)

The current PIN code status. Refer to AT+CPIN.

APN: (access point name of ISP)

The current access point you are connecting to. Refer to AT+APN.

CHAP: (status), USER & PSW

The current status of Challenge-Handshake Authentication Protocol (CHAP). Refer to AT+CHAP. When CHAP is enabled, user name and password are required.

DHCP & IP

The current status of DHCP server. Refer to AT+DHCP.

IP address assigned to the cradle is displayed in the second line:

▸ dynamic IP address when DHCP server is enabled
▸ static IP address when DHCP server is disabled

3.2.3 VIEW IMEI INFORMATION

You may need to identify the cradle by the IMEI number.
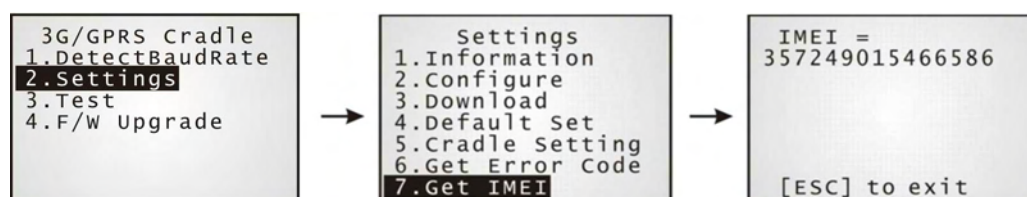
3.3 CONFIGURE SETTINGS

3.3.1 AUTHENTICATION

Set or modify the security setting of your SIM card. When enabled, PIN code is required.
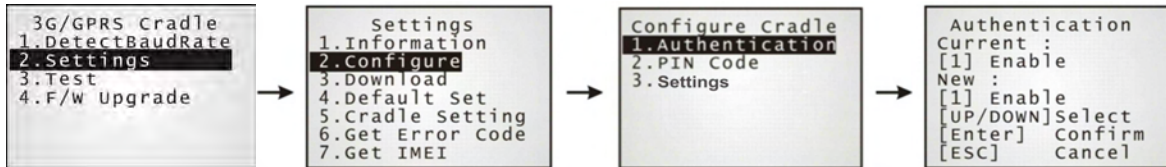
3.3.2 PIN CODE

Set or change the PIN code used for authentication.
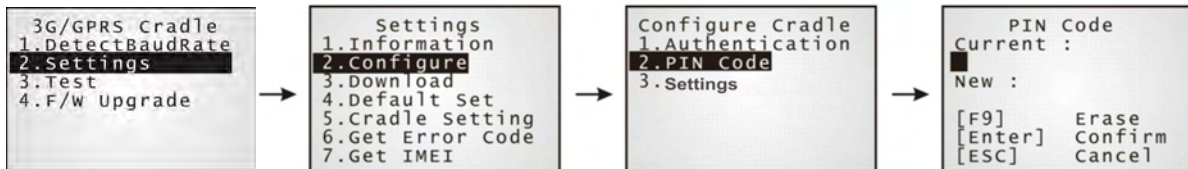
Note: You must input the correct PIN code even though authentication is disabled!

3.3.3 SETTINGS

The access point name, CHAP, and IP settings should be the same as obtained from your Internet service provider (ISP) or network operator.
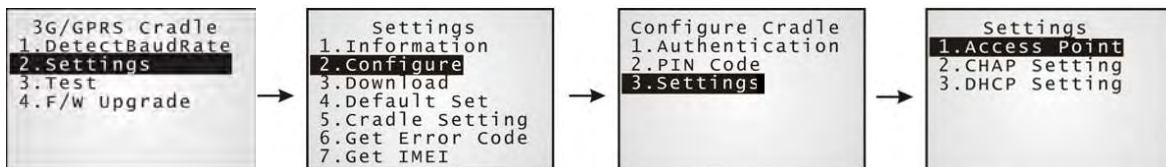
3.4 DOWNLOAD SETTINGS

3.4.1 DOWNLOAD OK

After configuring settings, download new connection settings to the cradle, or the cradles one by one.

1) On your mobile computer, go to **Settings | Default Set**.

2) Seat your mobile computer in the cradle.

```
3G/GPRS Cradle          Settings              Seat in Cradle          Seat in Cradle
1.DetectBaudRate     1.Information          ================        ================
2.Settings           2.Configure
3.Test               3.Download
4.F/W Upgrade        4.Default Set                  ⧖                Reset to defaults
                     5.Cradle Setting                                OK!
                     6.Get Error Code
                     7.Get IMEI             [ESC] to cancel          [ESC] to exit
```
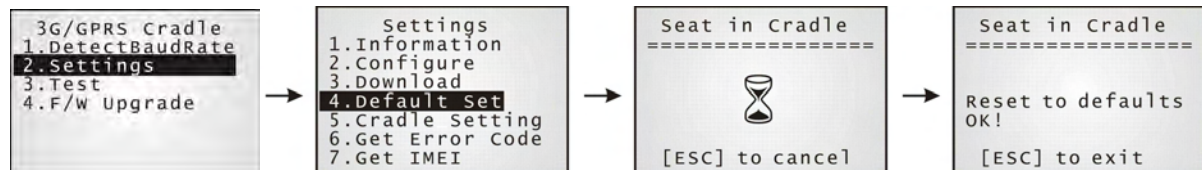
Note: For initial downloading, you are advised to load the default settings to the cradle first.

3) Disconnect the power supply cord.

4) Re-connect the power supply cord.

5) On your mobile computer, go to **Settings | Download**.

6) Seat your mobile computer in the cradle.

```
3G/GPRS Cradle          Settings              Seat in Cradle          Seat in Cradle
1.DetectBaudRate     1.Information          ================        ================
2.Settings           2.Configure                                   Downloading...
3.Test               3.Download
4.F/W Upgrade        4.Default Set                  ⧖                      ⧖
                     5.Cradle Setting
                     6.Get Error Code
                     7.Get IMEI             [ESC] to cancel          [ESC] to cancel
```

```
                                                                     Seat in Cradle
                                                                   ================

                                                                   Download OK!

                                                                   [ESC] to exit
```
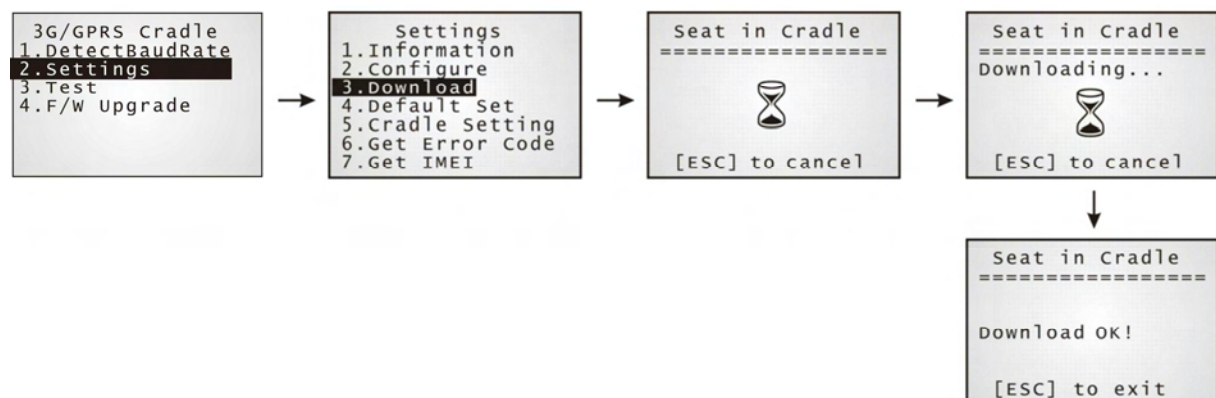
7) Disconnect the power supply cord.

8) Re-connect the power supply cord.

3.4.2 DOWNLOAD FAIL — INCORRECT PIN

This error message is displayed due to the incorrect PIN. You are required to provide the correct one while re-configuring settings.
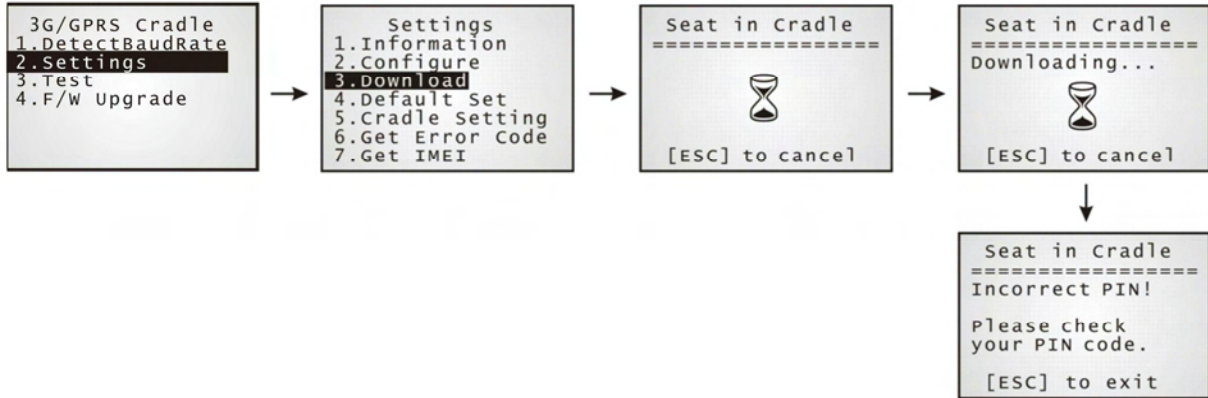
3.4.3 DOWNLOAD FAIL — PUK REQUIRED

This error message is displayed due to PUK issue. You are required to use your cellular phone to unlock the SIM card, with the PUK code provided by the network operator.
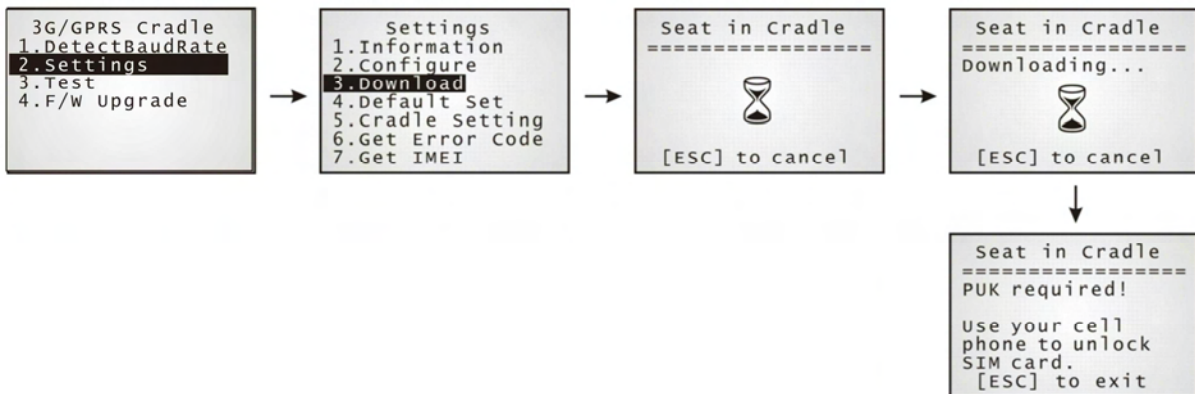
3.4.4 RESET TO DEFAULTS

For initial downloading, or in case the cradle malfunctions, you are advised to load the default settings to the cradle first.

1) On your mobile computer, go to **Settings | Default Set**.

2) Seat your mobile computer in the cradle.
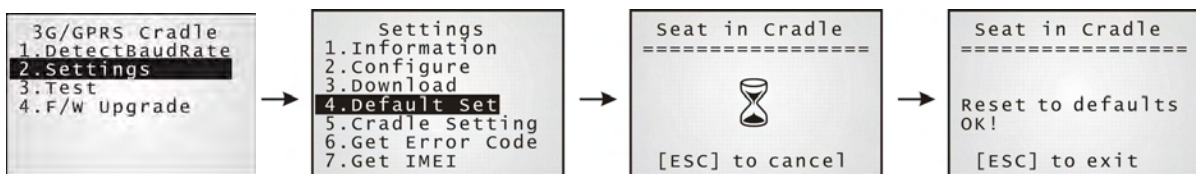
3.5 TESTING

You may find it necessary to test the basic functionalities of the cradle. Seat your mobile computer in the cradle and run the Echo Test utility on your desktop computer.

Note: (1) Echo Test – Dial GSM and Dial 3G/GPRS are for internal testing.
      (2) CMU200 Test is for manufacturing use.
      (3) Signal Level – Show you the signal quality presently.

3.5.1 3G/GPRS TEST

On your desktop computer, select [TCP/IP - Server] and change settings if necessary. Then, click [Start].
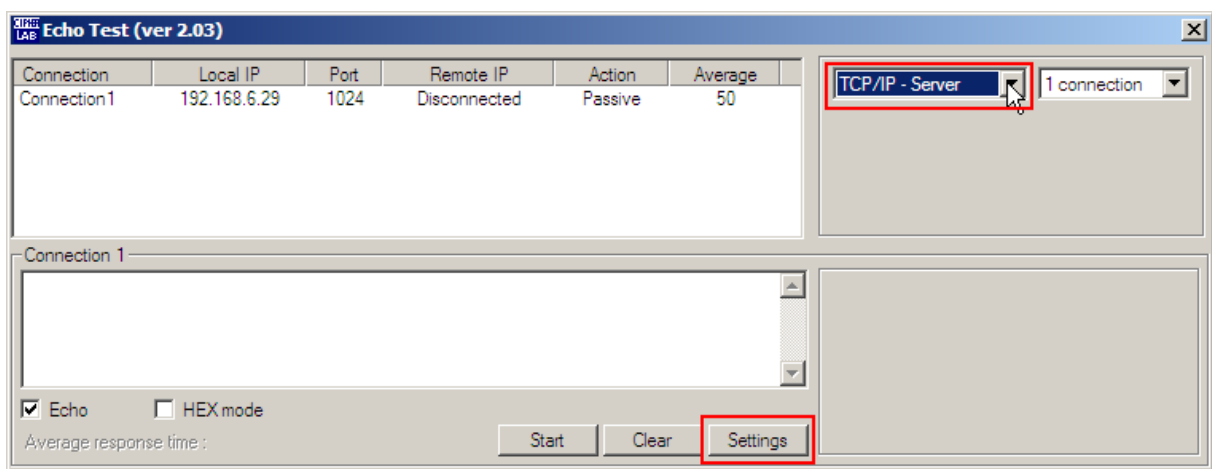
On your mobile computer, go to **Test | Echo Test | 3G/GPRS Test**.
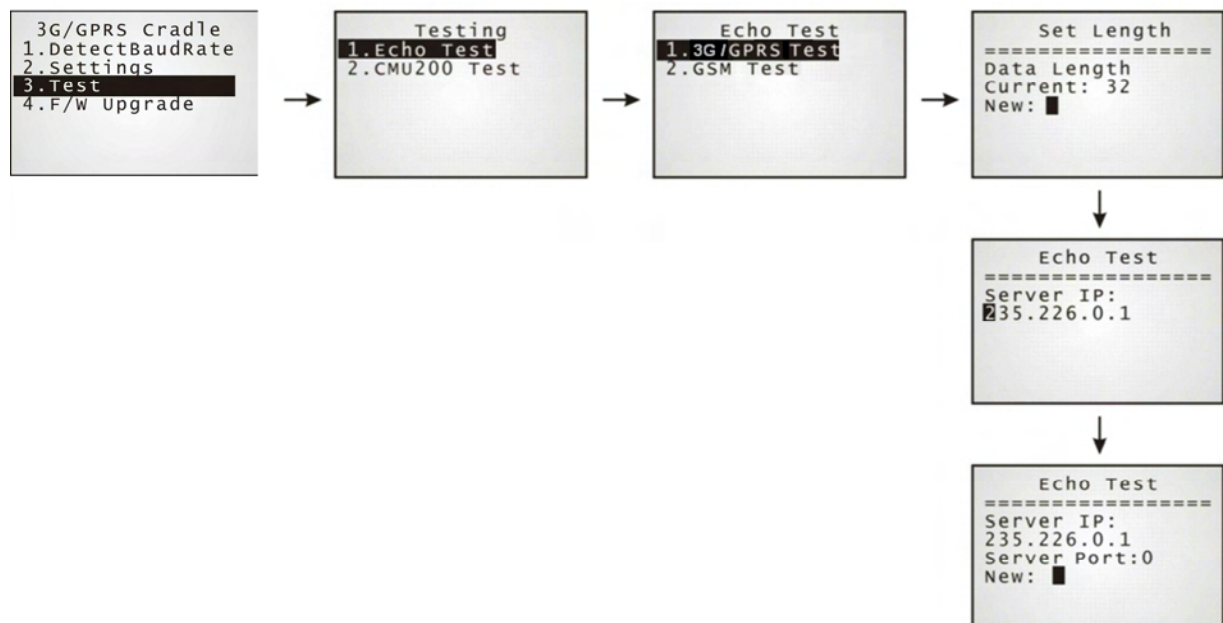
3.5.2 GSM TEST

On your desktop computer, select [Modem - TAPI] and change settings if necessary. For an external modem device, select [Modem – COM] and change settings if necessary. Then, click [Start].
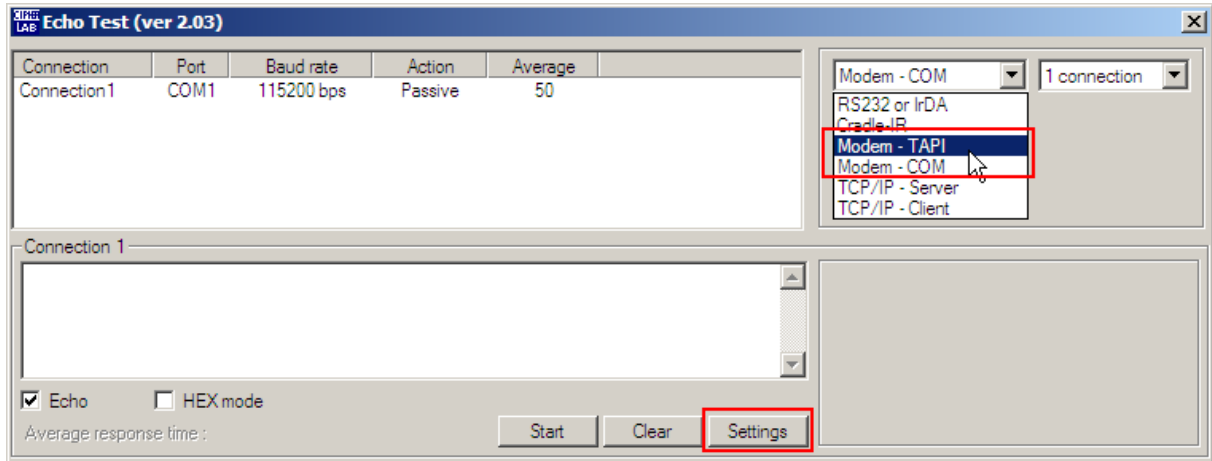
On your mobile computer, go to **Test | Echo Test | GSM Test**.
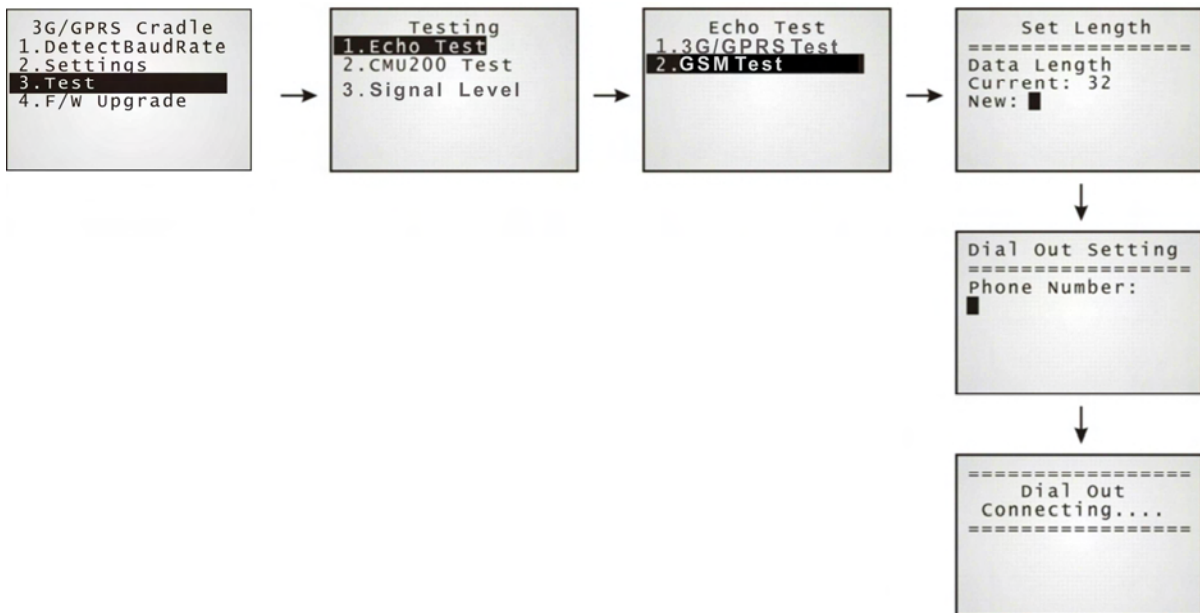
3.5.3 SIGNAL LEVEL

Show you the information about 3G/GPRS signal quality received through cradle.

1) On your mobile computer, go to **Test | Signal Level**.

2) Seat your mobile computer in the cradle.
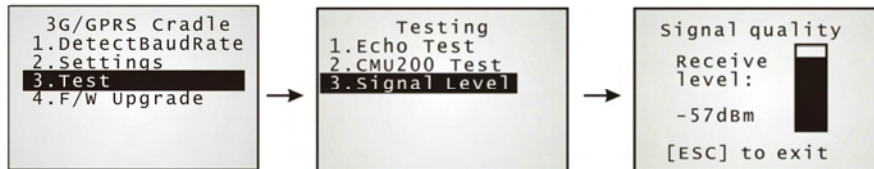
Note: Don't remove the mobile computer from the cradle before pressing [ESC] to exit the process of implementing signal level function.

3.6 CHECK ERROR CODES

You may need to check the error codes for troubleshooting. Refer to Error Codes.
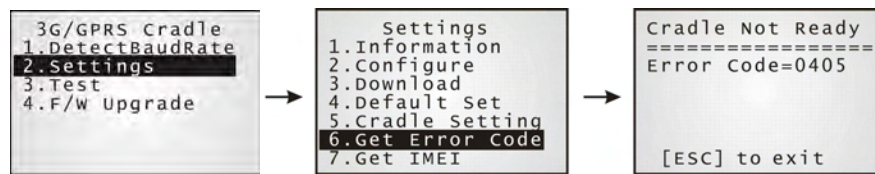
UPGRADING FIRMWARE

4.1 DOWNLOAD VIA MOBILE COMPUTER

The 3G/GPRS Cradle allows you to upgrade firmware via the mobile computer. When firmware upgrade is available, download the utility "8000Deploy3G.shx" to your mobile computer.

Warning: DO NOT upgrade firmware unless the version of firmware is newer than that your cradle has. For information of the current firmware version, check AT commands.

---

1) Download the utility "8000Deploy3G.shx" to your mobile computer.

    The mobile computer will display a selection menu.

2) On your mobile computer, select **F/W Upgrade**.

3) Seat the mobile computer in the cradle.

You may see this error message when the mobile computer is not properly seated in the cradle. Please try again!

Warning: Before completing the download, do not disconnect the power cord or remove the mobile computer from the cradle!

4.2 CRADLE DOWNLOAD MODE

Regardless of the result of initialization, you can issue "AT+DOWNLOAD" to upgrade to a new firmware version when available.

1) Connect a spare IR cradle to your computer and make sure the cradle baud rate is 57,600 bps (best suggestion). If not, adjust the cradle DIP switch.

2) Connect the power supply cords of the spare cradle and the 3G/GPRS Cradle to a suitable power outlet separately.

3) Hold the spare cradle upside-down so that its IR interface is facing to the IR interface of the 3G/GPRS Cradle, as shown as the illustration.

4) Run HyperTerminal on your computer. Type "AT+DOWNLOAD", and press the [ENTER] key.

5) When the cradle is ready to download a new program, the TX/RX and LAN indicators will flash.
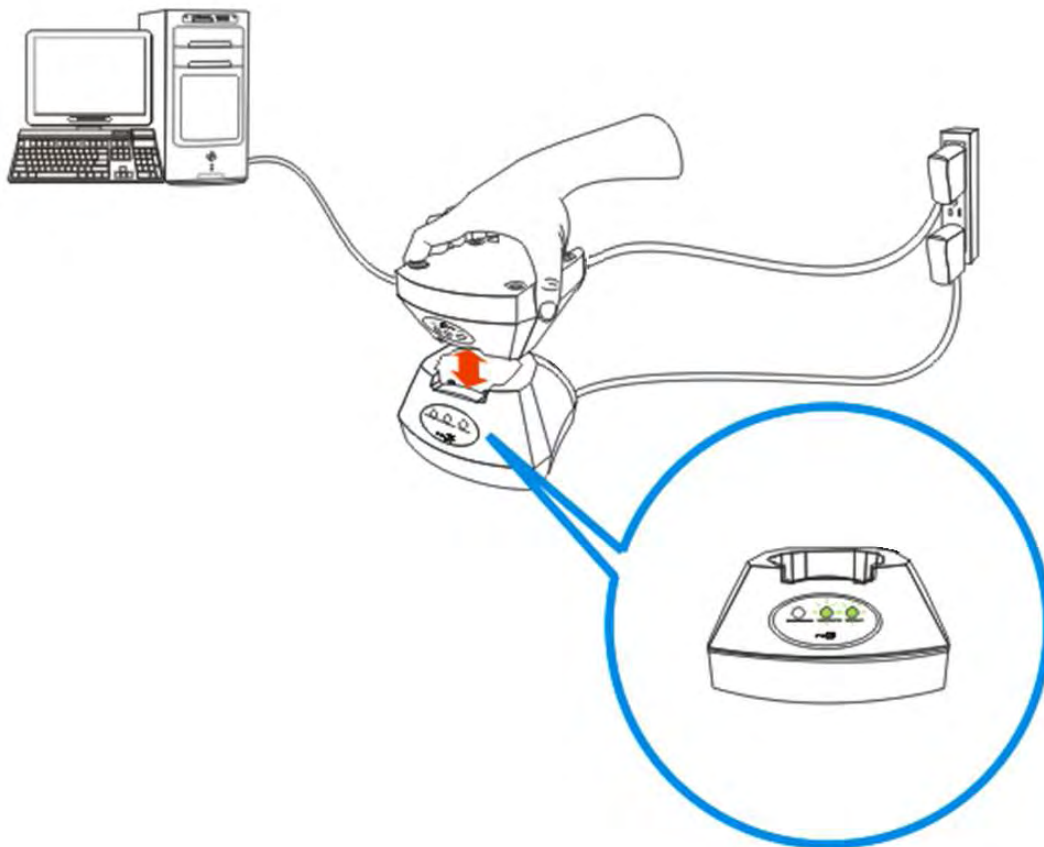
6) Exit HyperTerminal.

7) Run CipherLab download utility, such as ProgLoad.exe, on your computer.

8) During downloading, the TX/RX and LAN indicators will flash.

9) The 3G/GPRS Cradle will restart itself automatically upon completion of program download.

SPECIFICATIONS

8001 GPRS CRADLE

Processor & Memory

CPU	16-bit CMOS, low power consumption
Memory	Firmware upgradeable

Power Adapter

Input	AC 100~240 V, 50/60 Hz
Output	5V DC

Power Consumption

Standby	200 mW	: 40 mA for cradle only
	280 mW	: 56 mA when battery is charged to full
	2850 mW	: 570 mA while charging
	3150 mW	: 630 mA while charging with backlight on
Operating (dial-out & transmission)	1050 mW	: 210 mA when battery is charged to full
	3500 mW	: 700 mA while charging
	3825 mW	: 765 mA while charging with backlight on
Peak	10000 mW	: 2000 mA, 577µs

Enclosures

Materials	ABS plastic
Dimensions	111 mm (L) × 101 mm (W) × 57 mm (H)
Weight	Approx. 220g

Notifications

Status Indicators	3 LEDs for connection status

Communications

Data Call via GSM	支援四頻 EGSM 850/900 MHz、GSM 1800/1900 MHz ▶ Compliant to GSM Phase 2/2+
IP Packet via GPRS	▶ GPRS multi-slot Class 10 ▶ GPRS mobile station Class B

	EGSM 850/900 輸出功率為 Class 4 (2W)
	GSM 1800/1900 輸出功率為 Class 1 (1W)

Temperature	
Operating	-10 °C to 55 °C
Storage	-20 °C to 70 °C

Humidity	
Operating	10% to 90%, non-condensing
Storage	5% to 95%, non-condensing

8001 3G CRADLE

Processor & Memory

CPU	32-bit MCU
Memory	Firmware Upgradeable

Power Adapter

Input	AC 100~240 V, 50/60 Hz
Output	5V DC 2000mA

Power Consumption

Standby	80 mA	: Cradle only, no terminal
		: Established connection
		: No communication
Operating (dial-out & transmission)	450 mA	: Dial-out, data transmission
		: Terminal is beeping
		: Terminal's backlight is turned off
		: Terminal's battery is full
Charging	650 mA	: Terminal powered off
Full Power	1020 mA	: Dial-out, data transmission
		: Terminal is beeping
		: Terminal Backlight is turned on
		: Terminal's battery is charging

Enclosures

Materials	ABS plastic
Dimensions	111mm (L) × 101 mm (W) × 57 mm (H)
Weight	Approx. 220g

Notifications

Status Indicators	3 LEDs for connection status

Communications

Frequency Bands	▸ HSPA 800/850/900/1900/2100 MHz
	▸ EDGE/GPRS/GSM 850/900/1800/1900 MHz

Power Class	Radio Mode	Band	Power Class	
	WCDMA/HSPA	800/850/900/1900/ 2100 MHz	3	
	GSM/GPRS	850/900 MHz	4	
		1800/1900 MHz	1	
	EDGE	850/900 MHz	E2	
		1800/1900 MHz	E2	
IR	Baud rate = 57600 bps (default) or 115200 bps			

Temperature

Operating	-10 °C to 60 °C
Storage	-20 °C to 70 °C

Humidity

Operating	90% RH, non-condensing at 60 °C
Storage	95% RH, non-condensing at 70 °C

Note: Power consumption depends on network coverage in the real world.

PROGRAMMING SUPPORT

You may edit your own code for the mobile computer to communicate with the 3G/GPRS Cradle via the Cradle-IR interface. Refer to a separate programming guide.

MODEM MODE

An example is provided below.

```
char c;

SetCommType(1,COMM_IR);                         /*Set COM1 for IR*/

open_com(1,BAUD_57600|DATA_BIT8|PARITY_NONE|HANDSHAKE_NONE);

…

clear_com(1);

write_com(1," AT\r" );                   /* Send string or char to COM1*/

while (!com_eot(1));

while (1) {

        if (read_com(1,(void*)&c) )

                        /*read COM1 buffer data and save it in the C*/

        {

        …

        }

    …

    }
…
```

Note: If you are programming in BASIC language, make sure the default delimiter 0x0d (CR) is in use; otherwise, call COM_DELIMITER().

AT COMMANDS

The table below lists the AT commands supported for establishing a connection via GSM or 3G/GPRS separately. You can click the desired command below for more information.

AT Commands	Description	GSM Mode	3G/GPRS Mode
AT	Get echo from the cradle.	√	√
ATDT	Dial out to establish a data connection via GSM or 3G/GPRS.	√	√
ATF	Load factory defaults.	√	√
ATW	Write the current settings to flash.	√	√
AT+APN?	Get the Access Point Name (APN) currently in use.		√
AT+APN=	Set the Access Point Name (APN) you want to connect to.		√
AT+BAUD=	Set Baud rate (only for 3G Cradle)	√	√
AT+CHAP?	Get the Challenge-Handshake Authentication Protocol (CHAP) setting.		√
AT+CHAP=	Set the Challenge-Handshake Authentication Protocol (CHAP) setting, enable or disable.		√
AT+CLCK=SC, 2	Get the information about whether PIN authentication is applied to the facility lock of SIM card.	√	√
AT+CLCK=SC, <Parameter>, <PIN>	Set PIN authentication, enable or disable.	√	√
AT+CPIN?	Get the information about whether PIN or PUK code is required.	√	√
AT+CPIN=	Set PIN code for authentication.	√	√
AT+CPWD=SC	Change PIN code of SIM card.	√	√
AT+DHCP?	Get the Dynamic Host Configuration Protocol (DHCP) setting.		√
AT+DHCP=	Set the Dynamic Host Configuration Protocol (DHCP) setting, enable or disable.		√
AT+DLMT?	Get the delimiter check status, as well as the used delimiter character.	√	√
AT+DLMT=	Set the delimiter check, enable or disable.	√	√
AT+DOWNLOAD	Download firmware to the cradle.	√	√
AT+ERR?	Get the last 4 digits of error code for the initialization procedure.	√	√
AT+IP?	Get the fixed IP address of the cradle.		√

AT+IP=	Set the fixed IP address of the cradle.		√
AT+KVER?	Get the firmware version of the cradle kernel program.	√	√
AT+PSW?	Get the password for Challenge-Handshake Authentication Protocol (CHAP).		√
AT+PSW=	Set the password for Challenge-Handshake Authentication Protocol (CHAP).		√
AT+SN?	Get the serial number of the cradle.	√	√
AT+USER?	Get the user name for Challenge-Handshake Authentication Protocol (CHAP).		√
AT+USER=	Set the user name for Challenge-Handshake Authentication Protocol (CHAP).		√
AT+VER?	Get the firmware version of the cradle user program.	√	√
AT+CGSN?	Get the 15-digit IMEI number.	√	√
"+++"	The escape sequence, consisting of three characters "+++", is used to terminate the data connection. The time interval between each character should be less than one second, and the guard time periods before (leading) and after (trailing) should be longer than one second separately.	√	√

AT COMMAND SYNTAX

The "AT" or "at" prefix must be set at the beginning of each command line and enter <CR> is used to terminate a command. Commands are usually followed by a response as "<CR><LF><response><CR><LF>".

▶ Parameter […]

   Specify user-definable parameter values, which may be <text> or <number>.

▶ (ERR_STR)

   If a connection fails, the response may include a string after the message, e.g. "NO CARRIER", providing further information on the connection error.

▶ [ERR_CODE]

   If a connection fails, the response will always include a 6-digit hexadecimal number (always starting with "0x"). Refer to the Error Codes table for more information.

Note: If you are programming in BASIC language, the delimiter 0x0d (CR) is in use by default. Refer to COM_DELIMITER().

The escape sequence consists of three characters "+++". Once a connection has been established, type the escape sequence to return to command state. When entering the next command after an escape sequence, always wait to receive "\r\nOK\r\n". The escape sequence only works after dialing out and establishing the connection.

Note: The escape sequence will break the connection.

There are equal guard time before (leading) and after (trailing) the escape sequence command, as illustrated below.

Leading Guard Time (1 second)   +++   Trailing Guard Time (1 second)
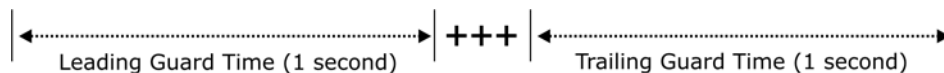
If the escape sequence is not followed by another command within 1 second (trailing guard time), the cradle will hang up immediately. Normally, the mobile computer will receive the message "OK" unless the line is abnormally busy.

Note: The Guard Time is 1 second and cannot be changed.

AT

Execution Command	Response
AT<CR>	<CR><LF>OK<CR><LF>

Example

```
AT
OK
```

Remarks

This command is for the echo test between the mobile computer and the cradle. It is suggested to issue the command "AT" every five seconds for best practice, in order to check whether the mobile computer is seated in the cradle.

See Also

Back to the Supported AT Commands.

ATDT

Execution Command – GSM	Response
ATDT[Phone_Number]<CR>	<CR><LF>CONNECT(INFO)<CR><LF>
	<CR><LF>NO CARRIER<CR><LF>(ERR_STR)
	<CR><LF>[ERR_CODE]<CR><LF>

Execution Command – 3G/GPRS	Response
ATDT[IP:Port]<CR>	<CR><LF>CONNECT(INFO)<CR><LF>
ATDT[HostName:Port]<CR>	
	<CR><LF>NO CARRIER<CR><LF>(ERR_STR)
	<CR><LF>[ERR_CODE]<CR><LF>

Example

ATDT0286471166 NO CARRIER [0x0b01]	▶ Make a GSM data call but the remote party hangs up.
ATDT0286471166 CONNECT 9600	▶ Make a GSM data call and the remote party answers the call.
ATDT192.168.2.1:1024 CONNECT	▶ Connect to a remote host successfully, via the 3G/GPRS access point.
ATDT192.168.6.176:21 NO CARRIER [0x8005]	▶ Cannot connect to a remote host via 3G/GPRS access point.
ATDTgprs.Cipherlab.com.tw:20009 CONNECT	▶ Connect to a remote host by host name successfully, via the 3G/GPRS access point.
ATDTdynamicIP.xyznet.org.tw:20000 NO CARRIER [0x9011]	▶ Cannot connect to a remote host by host name via 3G/GPRS access point.

Remarks

This command is to dial out for a data connection via GSM or 3G/GPRS (see examples above).

▶ If successful, the response may include a string after the message "CONNECT" appears, providing more information on the connection, such as baud rate, and so on.

▶ If a connection fails, the response may include a string after the message, e.g. "NO CARRIER"

appears, providing further information on the connection error and it will always include a 6-digit error code. Refer to the Error Codes table for more information.

See Also

AT+DLMT (GSM) AT+APN, AT+CHAP, AT+DHCP, AT+DLMT (3G/GPRS), Escape Sequence <+++>

Back to the Supported AT Commands.

ATF

Execution Command	Response
ATF<CR>	<CR><LF>OK<CR><LF>

Example

```
ATF
OK
```

Remarks

This command is for loading factory defaults, as shown below.

Parameters	Defaults	Description
unsigned char PINCode[9]	'0000'	PIN (Personal Identity Number) of SIM card; an access code of 4~8 digits
unsigned char 3GAccessPoint[21]	internet	AP name for Cradle
3G_FLAG Flag		See 3G_FLAG structure below.
unsigned int Reserved:14	---	---
unsigned int DelimEnable:1	0	Enable checking the delimiter character 0:Disable 1:Enable
unsigned int CHAPEnable:1	0	Challenge Handshake Authentication Protocol 0:Disable 1:Enable
char CHAPPassword[33]	Null	Password for Challenge Handshake Authentication Protocol (CHAP)
char CHAPUserName[33]	Null	User name for Challenge Handshake Authentication Protocol (CHAP)
char DelimiterChar	0x0d	Delimiter Character
int DhcpEnable	1	0: Disable DHCP 1: Enable DHCP
unsigned char IpAddr[4]	0,0,0,0	Static IP address for the cradle

See Also

ATW

Back to the Supported AT Commands.

ATW

Execution Command	Response
ATW<CR>	<CR><LF>OK<CR><LF>

Example

```
ATW

OK
```

Remarks

This command is to write the current settings to flash.

See Also

ATF

AT+APN

Read Command	Response
AT+APN?<CR>	<CR><LF>[AP_Name]<CR><LF>

Example

AT+APN? internet	▶ Access Point "internet" is in use.

Write Command	Response
AT+APN=[AP_Name]<CR>	<CR><LF>OK<CR><LF>

Example

AT+APN=emome OK	▶ Change the Access Point name to "emome".

Remarks

The Read command is to get the Access Point Name (APN) that is using currently.

The Write command is to set the Access Point Name (APN) you want to connect to.

[AP_Name] is a string for the name of a cradle access point, maximum 128 characters.

See Also

ATDT, AT+CHAP, AT+DHCP, AT+DLMT (3G/GPRS)

AT+BAUD

```
* only for 3G Cradle
```

Write Command	Response
AT+BAUD=[Parameter]<CR>	<CR><LF>OK<CR><LF>

Example

`AT+BAUD=1`
 	
`OK`
	▶ Set Baud rate to 115200 successfully

`AT+BAUD=0`
 	
`OK`
	▶ Set Baud rate to 57600 successfully

Remarks

Once the Baud rate setting is changed, system will immediately have the setting take effect and save it. Next time the device will power up with the new setting.

[Parameter] is a character that determines Baud rate setting —

▶ Parameter =0: Set Baud rate to 57600 bps

▶ Parameter =1: Set Baud rate to 115200 bps

See Also

Back to the Supported AT Commands.

AT+CHAP

Read Command	Response
AT+CHAP?<CR>	<CR><LF>DISABLE<CR><LF> <CR><LF>ENABLE<CR><LF>

Example	
AT+CHAP? DISABLE	▶ CHAP is disabled currently.

Write Command	Response
AT+CHAP=[Parameter]<CR>	<CR><LF>OK<CR><LF> <CR><LF>ERROR<CR><LF>

Example	
AT+CHAP=1 OK	▶ Enable CHAP successfully.

Remarks

The Read command is to get the Challenge-Handshake Authentication Protocol (CHAP) setting.

The Write command is to set the Challenge-Handshake Authentication Protocol (CHAP) setting, enable or disable.

[Parameter] is a character that determines whether CHAP is enabled —

 ▶ Parameter =0: Disable CHAP
 ▶ Parameter =1: Enable CHAP

See Also

ATDT, AT+APN, AT+DHCP, AT+DLMT, AT+PSW, AT+USER (2G)

Back to the Supported AT Commands.

AT+CLCK=SC

Read Command	Response
AT+CLCK=SC,2<CR>	<CR><LF>+CLCK:[Parameter]<CR><LF>

Example	
AT+CLCK=SC,2 +CLCK:0	▶ PIN authentication is disabled.

Write Command	Response
AT+CLCK=SC,[Parameter],[PIN]<CR>	<CR><LF>OK<CR><LF> <CR><LF>+CME ERROR<CR><LF>

Example	
AT+CLCK=SC,1,0000 OK	▶ Enable PIN authentication, using PIN code "0000"
AT+CLCK=SC,2, +CME ERROR	▶ Command syntax is incorrect!

Remarks

The Read command is to get the information about whether PIN authentication is applied to the facility lock of SIM card.

The Write command is to set PIN authentication, enable or disable.

[Parameter] is a character that determines whether PIN authentication is enabled —

▶ Parameter =0: Disable PIN authentication

▶ Parameter =1: Enable PIN authentication

[PIN] is a string for the PIN code.

▶ PIN (Personal Identity Number) is a 4~8 digit access code which can be used to secure your SIM card from use. If the wrong PIN is entered in more than three times, the SIM card will be locked.

See Also

AT+CPIN, AT+CPWD=SC

Back to the Supported AT Commands.

AT+CPIN

Read Command	Response
AT+CPIN?<CR>	<CR><LF>+CPIN:READY<CR><LF>
	<CR><LF>+CPIN:SIM PIN<CR><LF>
	<CR><LF>+CPIN:SIM PUK<CR><LF>

Write Command	Response
AT+CPIN =[PIN]<CR>	<CR><LF>OK<CR><LF>
AT+CPIN =[PUK],[New_PIN]<CR>	<CR><LF>ERROR<CR><LF>

Example

AT+CPIN? +CPIN: READY AT+CPIN=0000 ERROR	▶ PIN code has already been entered successfully, or the PIN authentication is disabled.
AT+CPIN? +CPIN: SIM PIN	▶ PIN code is required.
AT+CPIN=0000 OK	▶ Enter PIN code "0000".
AT+CPIN? +CPIN: SIM PUK AT+CPIN=12345678,1111 OK	▶ PUK code is required.

Remarks

The Read command is to get the information about whether PIN or PUK code is required.

The Write command is to set the PIN code for authentication.

[PIN] is a string for the PIN code, [New_PIN] is a string for the new PIN code, and [PUK] is a string for the PUK code.

▶ PIN (Personal Identity Number) is a 4~8 digit access code which can be used to secure your SIM card from use. If the wrong PIN is entered in more than three times, the SIM card will be locked.

▶ PUK (Personal Unblocking Key) is an 8-digit code used to unlock the PIN code if your SIM card is blocked. Contact your service provider for PUK. If the wrong PUK is entered ten times in a row, the SIM card will become permanently blocked and unrecoverable, requiring a new SIM card.

See Also

AT+CLCK=SC, AT+CPWD=SC

Back to the Supported AT Commands.

AT+CPWD=SC

Write Command	Response
AT+CPWD=SC,[Old_PIN],[New_PIN]<CR>	<CR><LF>OK<CR><LF> <CR><LF>ERROR<CR><LF>

Example

`AT+CPWD=SC,0000,2008` `OK`	▶ Change PIN code "0000" to "2008"
`AT+CPWD=SC,2008` `ERROR`	▶ Command syntax is incorrect!

Remarks

The Write command is to change PIN code of SIM card.

[Old_PIN] is a string for the current PIN code, and [New_PIN] is a string for the new PIN code.

▶ PIN (Personal Identity Number) is a 4~8 digit access code which can be used to secure your SIM card from use. If the wrong PIN is entered in more than three times, the SIM card will be locked.

See Also

AT+CLCK=SC, AT+CPIN

Back to the Supported AT Commands.

AT+DHCP

Read Command	Response
AT+DHCP?<CR>	<CR><LF>ENABLE<CR><LF>
	<CR><LF>DISABLE<CR><LF>

Example	
AT+DHCP? ENABLE	▶ DHCP is currently enabled.

Write Command	Response
AT+DHCP=[Parameter]<CR>	<CR><LF>OK<CR><LF>
	<CR><LF>ERROR<CR><LF>

Example	
AT+DHCP=0 OK	▶ Disable DHCP successfully.

Remarks

The Read command is to get the Dynamic Host Configuration Protocol (DHCP) setting.

The Write command is to set the Dynamic Host Configuration Protocol (DHCP) setting, enable or disable. [Parameter] is a character that determines whether DHCP is enabled —

▶ Parameter =0: Disable DHCP
▶ Parameter =1: Enable DHCP

See Also

ATDT, AT+APN, AT+CHAP, AT+DLMT, AT+IP (3G/GPRS)

Back to the Supported AT Commands.

AT+DLMT

Read Command	Response
AT+DLMT?<CR>	<CR><LF>ENABLE:[HEX]<CR><LF>
	<CR><LF>DISABLE<CR><LF>

Example	
AT+DLMT? ENABLE:0x0d	▶ Delimiter check is applied, and the character "0x0d" is in use currently.
AT+DLMT? DISABLE	▶ No delimiter check.

Write Command	Response
AT+DLMT=[Parameter](,HEX)<CR>	<CR><LF>OK<CR><LF>
	<CR><LF>ERROR<CR><LF>

Example	
AT+DLMT=1,0x0a OK	▶ Enable delimiter check successfully, and the character "0x0a" is in use.
AT+DLMT=1 ERROR	▶ Command syntax is incorrect!
AT+DLMT=0 OK	▶ Disable delimiter check successfully.

Remarks

The Read command is to get the delimiter check status. [HEX] is a character in hexadecimal, with the prefix "0x".

The Write command is to set the delimiter check, enable or disable. [Parameter] is a character that determines whether a delimiter character is applied —

▶ Parameter =0: Disable delimiter
▶ Parameter =1: Enable delimiter

When Parameter =1, [HEX] is a character in hexadecimal, with the prefix "0x". For example, "0x0d" for Carriage Return (CR).

See Also

ATDT

Back to the Supported AT Commands.

AT+DOWNLOAD

Execution Command	Response
AT+DOWNLOAD<CR>	<CR><LF>OK<CR><LF>

Example

```
AT+DOWNLOAD

OK
```

Remarks

This command is to upgrade firmware, either downloading a user program or kernel program to the cradle. After replying with the message "OK", the cradle will enter the Download Mode.

The TX/RX and LAN indicators will flash to indicate the cradle is ready for downloading.

See Also

AT+KVER, AT+VER

Back to the Supported AT Commands.

AT+ERR

Read Command	Response
AT+ERR?<CR>	<CR><LF>[dddd]<CR><LF>

Example

```
AT+ERR?
0b00
```

Remarks

This Read command is to get the error code for the initialization procedure.

[dddd] is the last 4 digits of the error code, which is a hexadecimal number starting with "0x". Refer to the Error Codes table for more information.

See Also

AT+KVER, AT+VER

Back to the Supported AT Commands.

AT+IP

Read Command	Response
AT+IP?<CR>	<CR><LF>[IP]<CR><LF>

Example	
`AT+IP?` `192.168.1.2`	▶ The fixed IP assigned to the cradle is 192.168.1.2

Write Command	Response
AT+IP=[IP]<CR>	<CR><LF>OK<CR><LF> <CR><LF>ERROR<CR><LF>

Example	
`AT+IP=192.168.2.100` `OK`	▶ Assign 192.168.2.100 to the cradle successfully.
`AT+IP=192.168.8` `ERROR`	▶ The dotted-decimal format is incorrect!

Remarks

The Read command is to get the fixed IP address of the cradle.

The Write command is to set the fixed IP address of the cradle.

[IP] is a string in dot-decimal for IP address xxx.xxx.xxx.xxx

See Also

AT+DHCP (3G/GPRS)

Back to the Supported AT Commands.

AT+KVER

Read Command

AT+KVER?<CR>

Response

<CR><LF>[Kernel_Version]<CR><LF>

Example

```
AT+KVER?

KVer: 1.00
```

Remarks

This Read command is to get the firmware version of the cradle kernel program.

[Kernel_Version] is a string that identifies the kernel; it will be updated after having downloaded a different kernel program to the cradle.

See Also

AT+DOWNLOAD, AT+VER

Back to the Supported AT Commands.

AT+PSW

Read Command	Response
AT+PSW?<CR>	<CR><LF>[Password]<CR><LF>

Example	
AT+PSW? 123456	▶ The current CHAP password is "123456".

Write Command	Response
AT+PSW=[Password]<CR>	<CR><LF>OK<CR><LF>

Example	
AT+PSW=123456 OK	▶ Set "123456" for CHAP password.

Remarks

The Read command is to get the password for Challenge-Handshake Authentication Protocol (CHAP).

The Write command is to set the password for Challenge-Handshake Authentication Protocol (CHAP).

[Password] is a string for the CHAP password, maximum 64 characters.

See Also

AT+CHAP, AT+USER (3G/GPRS)

Back to the Supported AT Commands.

AT+SN

Read Command	Response
AT+SN?<CR>	<CR><LF>[Serial_Number]<CR><LF>

Example

```
AT+SN?
EK8001024
```

Remarks

This Read command is to get the serial number of the cradle.

[Serial_Number] is a read-only string that identifies the hardware.

See Also

AT+KVER, AT+VER

Back to the Supported AT Commands.

AT+USER

Read Command	Response
AT+USER?<CR>	<CR><LF>[UserName]<CR><LF>

Example

AT+USER? Vodafone	▶ The current CHAP user name is "Vodafone".

Write Command	Response
AT+USER=[UserName]<CR>	<CR><LF>OK<CR><LF>

Example

AT+USER=Vodafone OK	▶ Set "Vodafone" for CHAP user name.

Remarks

The Read command is to get the user name for Challenge-Handshake Authentication Protocol (CHAP).

The Write command is to set the user name for Challenge-Handshake Authentication Protocol (CHAP).

[UserName] is a string for the CHAP user name, maximum 64 characters.

See Also

AT+CHAP, AT+PSW (3G/GPRS)

[Back to the Supported AT Commands.](#)

AT+VER

Read Command	Response
AT+VER?<CR>	<CR><LF>[UserProgram_Version]<CR><LF>

Example

```
AT+VER?

Ver: 1.00
```

Remarks

This Read command is to get the firmware version of user program.

[UserProgram_Version] is a string that identifies the firmware; it will be updated after having downloaded a different user program to the cradle.

See Also

AT+DOWNLOAD, AT+KVER

Back to the Supported AT Commands.

AT+CGSN

Read Command	Response
AT+CGSN?<CR>	<CR><LF>[ddddddddddddddd]<CR><LF>

Example

AT+CGSN?

357249015466586

Remarks

This Read command is to get IMEI information.

[ddddddddddddddd] is the 15-digit IMEI number.

See Also

Back to the Supported AT Commands.

ERROR CODES

The provision of error codes is to assist engineers in debugging the firmware. Please contact your sales representative to submit your request for interpretation of an error code.

An error code is a 6-digit hexadecimal number (always starting with "0x"). Refer to the Error Codes table for more information.

Error Codes		Description
0x	0101	GSM/3G/GPRS module failure
0x	0201	Hardware error
0x	0301	Disable network registration information error
0x	0401	Get PIN/PUK authentication state timeout
0x	0402	Get PIN/PUK authentication State error
0x	0404	PUK code required to unblock the SIM card
0x	0405	SIM card error or no SIM card inserted
0x	0501	Get the number of remaining PIN attempts timeout
0x	0502	Get the number of remaining PIN attempts error
0x	050a	Initialization procedure broken due to invalid remaining PIN attempts
0x	0601	Set PIN for authentication timeout
0x	0602	Set PIN for authentication failed
0x	0701	Disable new message indication timeout
0x	0702	Disable new message indication failure
0x	0801	Automatically register to the home operator timeout
0x	0802	Automatically register to the home operator failure
0x	0901	Specify Packet Data Protocol Context timeout
0x	0902	Specify Packet Data Protocol Context failure
0x	0a01	Attach 3G/GPRS timeout
0x	0a02	Attach 3G/GPRS failure
0x	0b01	Dialing out timeout
0x	0b02	Dialing out failure
0x	0c01	Read International Mobile Equipment Identity timeout
0x	0c02	Invalid International Mobile Equipment Identity
0x	0e0b	Fatal error as disconnecting the existing call/connection
0x	0f01	Query the SIM security lock state timeout
0x	0f02	Query the SIM security lock state error
0x	8003	Negotiation with the 3G/GPRS network timeout
0x	8011	No buffer space for link control packets

0x	8012	Unable to transmit link control packets
0x	8021	No buffer space for password authentication packets
0x	8022	Unable to transmit password authentication packets
0x	8031	No buffer space for IP control packets
0x	8032	Unable to transmit IP control packets
0x	8074	Connection terminated during link control negotiation
0x	8084	Connection terminated during IP control negotiation
0x	8095	CHAP authentication failure
0x	9001	Connect to the remote IP timeout
0x	9004	Connection terminated while connecting to the remote IP
0x	9010	Host name is too long.
0x	9011	DNS server is no response.
0x	9012	There is no IP information in the response message of DNS.
0x	9013	The resource type is not correct.
0x	9014	The resource class is not correct.
0x	a002	Connection terminated by the 3G/GPRS network
0x	a003	TCP/IP Connection error
0x	--ff	Disconnected by DCD line pulled high