

# Gemalto EHS6T-USB Terminal Starter Kit

## Getting Started Guide



### EHS6T-USB Terminal Starter Kit Contents

Image is for a 'Kit A' version. Other versions with different antenna may be available.

This manual is applicable to all EHS6T-USB versions.

**PLEASE NOTE – KIT CONTENTS MAY VARY ACCORDING TO ORIGIN AND THE INTENDED COUNTRY OF OPERATION**

## 1. Specifications

### 1.1 Mains In-Line Power Supply Unit

Input: 100 to 240 Volts a.c., 50 to 60 Hz. 0.4 Amps

Output: 15 Volts D.C. Regulated, 1.0 Amps Max

Power Rating: 15W

The 6-way Universal Jack for connecting to the Terminal is has the IGN\_ON pin wired to the +15V supply. This configuration will automatically start the Terminal when power is applied.

**1.2 Gemalto EHS6T Terminal:** Further documentation regarding the 3G Terminal is provided on the included CD-ROM. For the latest information and specifications for all GSM & 3G Terminals please refer to the Gemalto M2M web-site <http://m2m.gemalto.com/>

## 2. Reference Documents

[1] Gemalto EHS6T Terminal Hardware Interface Description – EHSxT\_BGS5T\_HID\_v01

[2] Gemalto EHS6T Terminal AT Command Set – EHSxT\_BGS5T\_ATC\_v01

Above can be downloaded from the Gemalto Developer Zone – see <https://developer.gemalto.com/>  
A simple registration process provides access to full documentation and the developer forum.

Note: From here-on the Gemalto EHS6T-USB Terminal will be referred to as '3G Terminal'.

## 3. Scope of this Document

The 3G Terminal requires control by either an external host device (such as a PC or other computer-based equipment) or by a Java Application running on the wireless module inside the 3G Terminal.

This document is provided to enable both new and experienced GSM/3G Terminal users to gain familiarity with the EHS6T 3G Terminal and confirm basic operation using the RS232 Serial interface.

## 4. Requirements

### 4.1 Hardware

Suitable devices are Personal Computers with Windows or Linux operating systems and an available RS232 Serial or USB interface.

For communication between a PC and the 3G Terminal 3 possible methods could be used as follows.

a) Using a PC with RS232 and the 3G Terminal RS232 Serial interface a serial data cable (provided) should be plugged into each devices 9-way D-type connector.

b) To use the 3G Terminal RS232 Serial interface, where the PC does not have an available RS232 Serial Data connection, it is possible to use an USB to RS232 converter. The manufacturers USB-serial device driver software will need to be pre-installed on the PC prior to using this method.

c) For communication via USB interface, a USB cable (Type: USB 'A' Plug to USB 'B' Plug) should be connected between each device. Software device drivers are available Windows OSs.

Note that the USB cable is only for communications and the 3G Terminal cannot be powered from the host PC via this cable. A separate power supply is required.

## **4.2 Software**

For initial evaluation and testing using a PC, suitable Terminal Emulator software is required to send and receive data to and from the 3G Terminal..

Windows Hyper-terminal software and other Terminal Emulators are suitable. Hyper-terminal is no-longer provided as standard on the latest Windows OS's, but the application and two associated .DLL files may be copied to a PC with a later OS (such as Windows 7) and run directly from the installed directory.

Several more advanced alternatives exist for Linux OS PCs as well as Windows which may provide easier configuration, scripting, logging and more advanced facilities.

## **4.3 SIM Cards**

To make and receive voice & data calls, a SIM card is required. A valid SIM card provided by any GSM network where reception is available is suitable, either pre-paid or contract type.

Most SIM cards allow the 3G Terminal to access the 3G and GPRS data bearer service for data communications if these are available from the network provider.

NOTE: Some Cellular Network Service Providers do not automatically enable (or provide) a Circuit-Switched-Data (CSD) service. CSD calls should not be confused with accessing the GPRS or 3G service for internet access. CSD calls are 'dialled' calls between a Terminal & Landline Modem or other Terminal (& Visa-Versa), created by dialling the telephone number with the ATD (Dial) command, as when making a voice call, but for the purpose of data-transfer between two devices.

Should the CSD service be required, it may need requesting from the cellular network operator and enabled on the SIM card(s) by them. If CSD is not enabled, the GSM/3G terminal will report 'No Carrier' when trying to make a CSD call.

## **5.0 Getting Started - Initial Set-up**

Start by removing and checking that all items required are present. If not provided in the starter Kit, a Mains Fig-8 Power cable will be required with a suitable mains plug for your region. Also required is the SIM card as above and optional USB cable or USB to Serial converter as may be required.

**1. Antenna.** Locate the antenna with SMA connector, and insert the screw-thread connector in to the 3G Terminal antenna socket. Continue to turn the hexagon nut until hand-tight to secure the antenna connection.



**2. SIM card.** Note the orientation of the SIM card relative to the 3G Terminal as indicated right and on the underside of the device. The SIM holder is a push-push type. When inserted far enough, the holder will 'click' and hold the card in position.

Insert the SIM card directly into the 3G Terminal. If necessary use a thin sturdy metal tool such as a flat head screwdriver to push the SIM card fully into the slot.

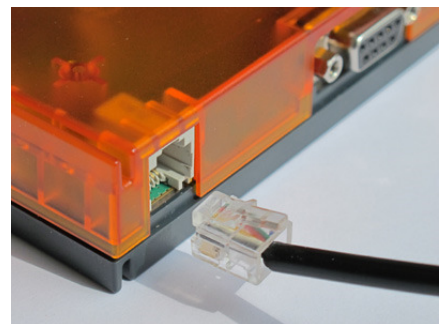


**3. Serial Data Cable.** Connect the male end of the Serial Data cable (9-way 'D' connector) to the 9-way 'D' connector on the 3G Terminal and the other end to the computer or USB-to-Serial adaptor.



**4. Power Supply.** Plug the power supply DC output cable into the 3G Terminal and the mains cable with Fig-8 connector into the PSU and switch on.

The Green LED should light immediately and remain constantly visible, indicating that power is present to the device. The Orange LED indicates the 3G Terminal status, as shown in the table later in this documents.



## 6.0 Starting Evaluation

Start the Terminal Emulator software such as HyperTerminal on the PC, and make sure that the settings are configured to work with the correct COM port (or Virtual COM port) to which the 3G Terminal is connected. In Windows, the Device Manager (Control panel -> System -> Device Manager) may help determine which COM port is being used.

Check and confirm that the COM port is configured as follows:

Data Rate: 115,200 Bit per second

Data bits: 8 bits

Parity: None

Stop Bits: 1

Flow Control: Hardware

Following power-up, the 3G Terminal will output the following messages which should be displayed in the Terminal Emulator window. These may be buffered if the Terminal has auto-bauding enabled.

**^SYSTLOADING**

**^SYSSTART**

It is now possible to start communications with the 3G Terminal as below.

Note that commands which require SIM-PIN authentication cannot be issued until after the 3G Terminal has completed reading the SIM data (phonebook & SMS information) and output the **+PBREADY** message .

In the Terminal Emulator software enter the Attention command as follows: **AT**↵

You should see the letters AT echoed back and visible in the Terminal Emulator window, followed by the response from the 3G Terminal: **OK**

If the communication cannot be established with the 3G Terminal, first check the following:

Check that the 3G Terminals' Green LED is on, indicating it is powered OK

Check the data connection between the Computer and the 3G Terminal

Check and verify the configuration of the COM port used on the Computer

## 7. Testing the Terminal

It is assumed that the communication between the computer and the 3G Terminal is working.

At this stage, and to help with initial evaluation, an understanding of the Orange LED function can be useful. The following table indicates the status indicated by the various Orange LED flash patterns

Orange LED mode	Operating status of 3G Terminal
Permanently off	3G Terminal is in one of the following modes: <ul style="list-style-type: none"><li>• POWER DOWN mode</li><li>• Airplane mode</li></ul>
500 ms on / 500 ms off	Limited Network Service: No SIM card inserted or no PIN entered, or network search in progress, or on-going user authentication, or network login in progress
10 ms on / 4 sec off	IDLE mode: 3G Terminal is registered on the network (monitoring control channels and user interactions). No call, no data transfer
10 ms on / 2 sec off	Packet switched data transfer in progress
10 ms on / 1 sec off	Depending on type of call: <i>Voice call</i> : Connected to remote party <i>CSD call</i> : Connected to remote party or exchange of parameters while setting up or disconnecting a call

**Operating status indicated by Orange LED indicator**

\* When a temporary wake-up event (for example URC, call, packet switched transfer) occurs in CYCLIC SLEEP mode the LED flashes. See Chapter AT+CFUN provided in [2] for details on SLEEP modes and wake-up events.

For initial evaluation and to further confirm functionality consider trying the following commands.

This is not provided as an exhaustive list, but a guide to determine that GSM Terminal is operating correctly and starting point for further evaluation of the device and AT Commands. See [2].

**AT+SMSC=0** : ALWAYS use this command to turn off the GSM Terminal. The GSM Terminal will detach from the network and power down in a controlled way. Internal functions (such as writing to Flash Memory!!) will terminate correctly prior to the device entering the power down state. The GSM Terminal will issue the response '**^SHUTDOWN**' and power may then be removed.

**AT+I1** : Check the Modem type when serial link is OK.

**AT+CSQ** : verify the received signal strength.

**AT+CREG=?** : verify the registration of the Terminal on the GSM network.

**ATD<phone number>;** :to initiate a voice call.

**ATD<phone number>** :to initiate a CSD call.

**ATA** : to receive an incoming call.



**ATH** : to hang up (end of call).

**AT+CPIN**=xxxx :to enter a PIN code xxxx (if activated).

NOTE: To send an SMS using the 3G Terminal needs to be changed to SMS Text Mode using the command: **AT+CMGF=1** ,also AT+check the SMS service centre number is set using **AT+CSCA?**

To send an SMS from the GSM Terminal use:

**AT+CMGS="destination\_number"** The 3G Terminal will issue a '>' prompt  
> enter the text message after the '>' prompt then send [Ctrl-Z]

The [Ctrl-Z] character indicates the end of the text input and the 3G Terminal will then send the SMS to the 'destination number'.

To perform an informal network scan (no SIM card is required), enter

**AT^SNMON="INS",2**

The 3G Terminal will scan for available networks (which takes many seconds if a lot of networks are available). After this time the 3G Terminal will output the details of each network and base station identified including the RSSI (last but one value per entry line).

### Further Reading

For further information regarding the 3G Terminal and the AT Commands for control see document [2] referenced above.

For accessories and additional parts contact your local country retailer.

For advice regarding more advanced features and applications see the support section of the Gemalto M2M web-site <http://m2m.gemalto.com/>

**JAVA** The latest Gemalto Cinterion 2G & 3G Terminals include a Java ME support for installation and execution of custom applications. The JAVA application can manage all radio, input/output interfaces and RTC features of the Terminal. A Java SDK is available. Further information can be found in the Java Users Guide, available on the Gemalto Developer Zone – see <https://developer.gemalto.com/>