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SIM7X00 Series_SMS_

Application Note_V1.00

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Version History

Date	Version	What is new	Author
2016-07-09	1.00	New version	Dongshan.liu

Scope

This document presents the AT command of SMS operation and application examples. This document can apply to SIM7X00 series modules, including SIM7600C, SIM7600CE, SIM7500A and SIM7500JE.

Contents

1. Introduction

1.1 Overview

This document gives the usage of SIM7X00 SMS function; customer can get useful information about the SIM7X00 SMS function quickly with this document.

SMS function is provided in AT command format, customer can access these SMS AT commands through UART/USB interface which communicates with SIM7X00 module.

SIM7X00 SMS features:

● Manage SMS storage

● Read, write and delete SMS messages in preferred storage

● Edit SMS message and send it

● Receive SMS message

● Set sending and receiving parameters

1.2 References

The present document is based on the following document:

[1]   SIM7X00 Series_AT Command Manual_V1.00

1.3 Terms and Abbreviations

For the purpose of the present document, the following abbreviations apply:

▪ AT   Attention; the two-character abbreviation is used to start a command line to be sent from TE/DTE to TA/DCE
▪ CSD   Circuit Switched Data
▪ DCE   Data Communication Equipment; Data Circuit terminating Equipment
▪ DCS   Digital Cellular Network
▪ DTE   Data Terminal Equipment
▪ DTMF   Dual Tone Multi–Frequency
▪ EDGE   Enhanced Data GSM Environment
▪ EGPRS   Enhanced General Packet Radio Service
▪ GPIO   General–Purpose Input/Output
▪ GPRS   General Packet Radio Service
▪ GSM   Global System for Mobile communications
▪ HSDPA   High Speed Downlink Packet Access

- HSUPA   High Speed Uplink Packet Access
- I2C   Inter–Integrated Circuit
- IMEI   International Mobile station Equipment Identity
- IMSI   International Mobile Subscriber Identity
- ME   Mobile Equipment
- MMS   Multimedia message system
- MO   Mobile–Originated
- MS   Mobile Station
- MT   Mobile–Terminated; Mobile Termination
- PCS   Personal Communication System
- PDU   Protocol Data Unit
- PIN   Personal Identification Number
- PUK   Personal Unlock Key
- SIM   Subscriber Identity Module
- SMS   Short Message Service
- SMS–SC   Short Message Service – Service Center
- TA   Terminal Adaptor; e.g. a data card (equal to DCE)
- TE   Terminal Equipment; e.g. a computer (equal to DTE)
- UE   User Equipment
- UMTS   Universal Mobile Telecommunications System
- URL   Uniform resource locator
- USIM   Universal Subscriber Identity Module
- WCDMA   Wideband Code Division Multiple Access

2. SMS Quick Start – Storage

The purpose of this section is to help users to start with SMS storage

2.1 Set Preferred Message Storage

Select memory storages <mem1>, <mem2> and <mem3> to be used for reading, writing, etc. These values will be saved after the module restarts

<mem1>
String type, memory from which messages are read and deleted (commands List Messages AT+CMGL, Read Message AT+CMGR and Delete Message AT+CMGD).

"ME" and "MT"   FLASH message storage
    "SM"   SIM message storage
    "SR"   Status report storage

<mem2>
String type, memory to which writing and sending operations are made (commands Send Message from Storage AT+CMSS and Write Message to Memory AT+CMGW).

"ME" and "MT"   FLASH message storage
    "SM"   SIM message storage
    "SR"   Status report storage

<mem3>
String type, memory to which received SMS is preferred to be stored (unless forwarded directly to TE; refer command New Message Indications AT+CNMI).
"ME"   FLASH message storage   "SM"   SIM message storage

AT+CPMS="SR","ME","SM"

3. Read SMS

3.1 List SMS Messages from Preferred Store

This command is used to return messages with status value <stat> from message storage <mem1> to the TE. If the status of the message is 'received unread', after this, the status in the storage will be changed to 'received read'.

> *AT+CMGL="ALL"*
> *+CMGL: 1,"STO UNSENT","+10011",,,145,4*
> *Hello World*
> *OK*

3.2 Read Message

This command is used to return message with location value <index> from message storage <mem1> to the TE.

> *AT+CMGR=1*
> *+CMGR: "STO UNSENT","+10011",,145,17,0,0,167,"+8613800100500",145,4*
> *Hello World*
> *OK*

3.3 Delete SMS

This command is used to delete message from preferred message storage <mem1> location <index>. If <delflag> is present and not set to 0 then the ME shall ignore <index> and follow the rules for <delflag> shown below.

> *AT+CMGD=1*
> *OK*

3.4 Write Message to Memory

> *AT+CMGW="13012832788" <CR> (TEXT MODE)*
> *ABCD<ctrl-Z/ESC>*
> *+CMGW:1*
> *OK*

4. Edit/Send SMS

4.1 Send Message from Scratch

This command is used to send message from a TE to the network (SMS-SUBMIT).:

AT+CMGS="13012832788"<CR>(TEXT MODE)
> ABCD<ctrl-Z/ESC>
+CMGS: 46
OK

4.2 Send Message from Storage

This command is used to send message with location value <index> from preferred message storage <mem2> to the network (SMS-SUBMIT or SMS-COMMAND).:

AT+CMSS=3
+CMSS: 0
OK
AT+CMSS=3,"13012345678"
+CMSS: 55
OK

5. Receive SMS

5.1 New Message Indications to TE

Command AT+CNMI is used to select the procedure how receiving of new messages from the network is indicated to the TE when TE is active, e.g. DTR signal is ON. If TE is inactive (e.g. DTR signal is OFF). If set <mt>＝2, <mt>＝3 or <ds>＝1, make sure <mode>＝1, otherwise it will return error.

These values will be saved after the module restarts

<mode>		
0	–	Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications.
1	–	Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode). Otherwise forward them directly to the TE.
2	–	Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE.

<mt>		

The rules for storing received SMS depend on its data coding scheme, preferred memory storage (AT+CPMS) setting and this value:

0	–	No SMS-DELIVER indications are routed to the TE.
1	–	If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CMTI: <mem3>,<index>.
2	–	SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group (store message)) are routed directly to the TE using unsolicited result code: +CMT:[<alpha>],<length><CR><LF><pdu> (PDU mode enabled); or +CMT:<oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>] <CR> <LF><data> (text mode enabled, about parameters in italics, refer command Show Text Mode Parameters AT+CSDH).
3	–	Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codes defined in <mt>=2. Messages of other data coding schemes result in indication as defined in <mt>=1.

<bm>		

The rules for storing received CBMs depend on its data coding scheme, the setting of Select CBM Types (AT+CSCB) and this value:

0	–	No CBM indications are routed to the TE.
2	–	New CBMs are routed directly to the TE using unsolicited result code:

	+CBM: \<length>\<CR>\<LF>\<pdu> (PDU mode enabled); or
	+CBM: \<sn>,\<mid>,\<dcs>,\<page>,\<pages>\<CR>\<LF>\<data> (text mode enabled)
\<ds>	
0	− No SMS-STATUS-REPORTs are routed to the TE.
1	− SMS-STATUS-REPORTs are routed to the TE using unsolicited result code:
	+CDS: \<length>\<CR>\<LF>\<pdu> (PDU mode enabled); or
	+CDS: \<fo>,\<mr>,[\<ra>],[\<tora>],\<scts>,\<dt>,\<st> (text mode enabled)
2	− If SMS-STATUS-REPORT is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CDSI: \<mem3>,\<index>.
\<bfr>	
0	− TA buffer of unsolicited result codes defined within this command is flushed to the TE when \<mode> 1 to 3 is entered (OK response shall be given before flushing the codes).
1	− TA buffer of unsolicited result codes defined within this command is cleared when \<mode> 1 to 3 is entered.

6. SMS AT Command Samples

Commands and Responses	Comments
AT+CMGF=1 OK	Set SMS system into text mode, as opposed to PDU mode.
AT+CPMS="SM","SM","SM" +CPMS: 0,40,0,40,0,40 OK	Select memory storages.
AT+CNMI=2,1 OK	Set new message indications to TE.
AT+CMGS="+861358888xxxx" >This is a test <*Ctrl+Z*> +CMGS:34 OK	Set new message indications to TE.
+CMTI:"SM",1	Unsolicited notification of the SMS arriving.
AT+CMGR=1 +CMGR: "REC UNREAD", "+86135888xxxx", ,"08/01/30, 20:40:31+00" This is a test OK	Read SMS message that has just arrived. **NOTE:** The number should be the same as that given in the +CMTI notification.
AT+CMGR=1 +CMGR: "REC READ", "+861358888xxxx",,"08/01/30 , 20:40:31+00" This is a test OK	Reading the message again changes the status to "READ" from "UNREAD".
AT+CMGS="+861358888xxxx" >Test again<*Ctrl+Z*> +CMGS:35 OK	Send another SMS to myself.
+CMTI:"SM",2	Unsolicited notification of the SMS arriving.
AT+CMGL="ALL" +CMGL: 1, "REC READ", "+861358888xxxx", , "08/01/30,20:40:31+00" This is a test +CMGL: 2, "REC UNREAD","", "+861358888xxxx", , "08/01/30,20:45:12+00" Test again	Listing all SMS messages.

OK	
AT+CMGD=1 OK	Delete an SMS message.
AT+CMGL="ALL" +CMGL: 2,"REC READ","+861358888xxxx", "08/01/30,20:45:12+00" Test again OK	List all SMS messages to show message has been deleted.

7. Conflict AT Commands

Following AT commands cannot be used with SMS AT commands together, they will cause a conflict:

● Call AT Commands.

8. SMS Coding

SMS have TEXT mode and PDU mode

8.1 PDU Mode

In this mode, user can send and receive Chinese SMS and English SMS
It support codes: 7-bit, 8bit UCS2

8.2 TEXT Mode

GSM/WCDMA/TDSCDMA/LTE(CMCC UNICOM):
User can use AT+CSCS set the SMS coding ("IRA", "GSM", "UCS2")

It can send and receive Chinese SMS and English SMS

CDMA/EVDO:
support "IRA" coding, you only can send and English SMS.

And receive Chinese SMS and English SMS.

Note: show Chinese SMS in UCS2 coding.

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