SMS Application notes

AN_SMS_V1.01

Revision Note

FAQ

Application Note

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SCOPE

Thanks you select SIMCOM GSM/GPRS module.

This product has standard AT command interface, and can provide GSM call, short message and GPRS net services, etc.

Please read this user guide carefully. You can realize the powerful function and the easy operation method of the module.

This module is used in voice or data communication mainly. We are not charge with the duty of personal injury and property loss for the custom abnormal operation. Please design the corresponding product according to the technical specification and reference in the handbook. And note the general safe item when use mobile product especially GSM product.

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This document suits for SIM300/SIM340, SIM300C/SIM340C, SIM300D/SIM340D, SIM3XXS, SIM300W/SIM340W, SIM300 E/SIM340 E.

Contents

1 Introduction

This document describes how to send the Chinese and English short message through Hyper Terminal by AT command of SIMCOM module providing.

1.1 References

[1] SIMCOM_ATC

[2] SIMCOM_UGD

[3] GSM 03.38 version 5.6.0

[4] GSM 03.40 version 7.3.0 Release 1998

1.2 Related command

AT+CMGF	SELECT SMS MESSAGE FORMAT
AT+CSCS	SELECT TE CHARACTER SET
AT+CSCA	SMS SERVICE CENTER ADDRESS
AT+CMGS	SEND SMS MESSAGE
AT+CSMP	SET SMS TEXT MODE PARAMETERS
AT+CNMI	NEW SMS MESSAGE INDICATIONS
AT+CMGD	DELETE SMS MESSAGE
AT+CMGL	LIST SMS MESSAGES FROM PREFERRED STORE
AT+CMGR	READ SMS MESSAGE
AT+CMGDA	DELETE ALL SMS
AT+CMSS	SEND SMS MESSAGE FROM STORAGE
AT+CMGC	SEND SMS COMMAND
AT+CPMS	PREFERRED SMS MESSAGE STORAGE
AT+CRES	RESTORE SMS SETTINGS
AT+CSAS	SAVE SMS SETTINGS
AT+CSCB	SELECT CELL BROADCAST SMS MESSAGES

1. The EVB of the module connect to PC by serial port cable

2. On PC, Start the Hyper Terminal procedure that the serial port rate set as 115200

3. Confirm the SIMCOM module and the SIM card are located on EVB, and then supply power.

2 Application example

2.1 Send Chinese and English short message in PDU mode

Define the [PDU]data unit mode：

1-12 octets	1 octet	1 octet	2-12 octets	1 octet	1 octets	1 octet	1 octet	0-140 octets
SMSC	PDU type	MR	DA	PID	DCS	VP	UDL	UD

For example: **send "你好" to 13912345678**

The sending data: **你好**

The Unicode coding: **4F60597D**

Set the short message mode as PDU mode:

      AT+CMGF=0

Set the character mode as UCS2 mode:

      AT+CSCS="UCS2"

Set the address of short message service center:

      For Shanghai,China，   the address is +8613800210500

      AT+CSCA="002b00380036003100330038003000300032003100300030003500300030003000 30",

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Send   AT+CMGS=019   // The decimal length of PDU，don't include SMSC

> 0011000D91683119325476F8000801044F60597D [ctrl-Z]

00	**//** the length of SMSC	
11	// **FO**	set the mode of PDU
00	// **MR**	send the referenced number
0D	// **DA**	the length of destination number
91	// **DA**	the type of destination number
68	// **DA**	the district number of China
3119325476F8	// **DA**	the coding of destination number[1]
00	// **PID**	the sending mode
08	// **DCS**	the coding mode[2]
01	**// VP**	Period of Validity
04	//**UDL**	data length

4F60597D   //**UD**   Unicode coding of data content

NOTE 1:

In the example, the destination number is a memory coding mode. Interchange the location of every two data, fill remain location with F.

For example 13912345678, the coding is 3119325476F8

NOTE 2:

Set the mode of DCS coding to change the class of sending short message in PDU mode：

According to the GSM03.38 protocol, the DCS field (Bit7…0) of PDU is used in setting the coding mode of short message content and the send class. Details as follow:

Bit4 is used for deciding the setting of Bit1 and Bit0 available or not (1 disable, 0 enable);

Set Bit 1 and Bit 0 = 0, means it is 0 class to send short message, i.e. send short message to the terminal directly and do not storage in SIM card;

Set Bit3=1 and Bit 2=0, means the coding of the short message content is UCS2 coding. In the above example, the DCS field is 08, i.e. the coding of short message content is UCS2 coding and no send class; if change to 18, means the coding of short message content is UCS2 coding and send according to 0 class, i.e. send the short message to the terminal directly

User can send the Chinese short message of PDU mode following the above mentioned example, and change the decimal length of TPDU, the coding of mobile phone number, the address of short message service center, the length of the message and the Unicode coding of the message content.

2.2 Send Chinese and English short message to PHS in PDU mode

For example: Send "你好" To 02128748612

set the short message mode as PDU mode :

        AT + CMGF= 0

Set the character mode as UCS2:

        AT + CSCS= "UCS2"

Set the address of short message service center:

        For Shanghai,China,   the address is +8613800210500

        AT+CSCA="002b00380036003100330038003000300032003100300030003500300030",

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Send   AT + CMGS = 19   // The decimal length of PDU，don't include SMSC

>0011000E81010612824768120000801044f60597d[CTRL+Z]

     81   // **DA**   the type of destination number

             // **DA**   Don't need the district number

01061282476812   // **DA**   the coding of destination number（Add 106）

User can send the Chinese short message of PDU mode to PHS following the above mentioned example, and change the decimal length of TPDU, the address of short message service center, the coding of PHS number（Add 106）, the length of the message and the Unicode coding of the message content

2.3 Send Chinese short message in TEXT mode

For example: send "你好" to 13912345678

Set the short message mode as TEXT mode:

        AT+CMGF=1

Set the character mode as UCS2 mode:

        AT+CSCS="UCS2"

Set the address of short message service center:

        For Shanghai,China,   the address is +8613800210500

        AT+CSCA="002b00380036003100330038003000300032003100300030003500300030",

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Set the related parameters for sending short message:

        AT+CSMP=17, 167, 0, 24   // The four parameters are FO, VP, PID and DCS[1].

Send   AT+CMGS=" 00310033003900310032003300340035003600370038"

                // Enter the coding of the mobile phone number directly

➢   4F60597D[ctrl-Z]

 NOTE 1：

The means represented by them are same as the PDU mode parameters. And the difference is that the parameters must show with decimal mode. The parameter 24 means that the short message content is UCS2 coding and sent to destination terminal directly. If changed into 25, means that the short message content is UCS2 coding and send to SIM card to storage.

User can send the Chinese short message of TEXT mode following the above mentioned example,

and change the address of short message service center，change the coding of mobile phone number and the Unicode coding of message content.

2.4 Send Chinese short message to PHS in TEXT mode

For example: send "你好" to 02128748612

Set the short message mode as TEXT mode:

AT+CMGF=1

Set the character mode as UCS2 mode:

AT+CSCS="UCS2"

Set the address of short message service center:

For Shanghai,China,   the address is +8613800210500

AT+CSCA="002b00380036003100330038003000300032003100300030003500300030",

145

Set the related parameters for sending short message:

AT+CSMP=17, 167, 0, 24   // The four parameters are FO, VP, PID and DCS.

Send   AT+CMGS=" 00310030000360030003200310032003800370034003800360031003 2"

// Enter the coding of the PHS number（add 106）directly

➢   4F60597D[ctrl-Z]

User can send the Chinese short message of TEXT mode to PHS following the above mentioned example, and change the address of short message service center，change the coding of PHS number and the Unicode coding of message content.

2.5 Send English short message in TEXT mode

For example, send "Hello" to 13912345678

Set the short message mode as TEXT mode:

AT+CMGF=1

Set the character mode as GSM mode:

AT+CSCS="GSM"

Set the address of short message service center:

For Shanghai,China，the address is +8613800210500

AT+CSCA="+868613800210500"，145

Set the related parameters for sending short message:

AT+CSMP=17，167，0，240   **//** The four parameters are FO, VP, PID and DCS[1]

Send   AT+CMGS="13912345678"   // Enter the mobile phone number directly

➢ Hello[ctrl-Z]

NOTE 1：

The meanings represented by them are same as the PDU mode parameters. The difference is that the parameter must show with decimal mode. The parameter 240 means that the short message content is default as GSM coding and sent to the destination terminal directly. If changed into 241, means that the short message content is GSM coding and send to SIM card to storage.

User can send the English short message of **TEXT** mode following the above mentioned example, and change the address of short message service center，change the mobile phone number and the message content.

2.6 Send English short message to PHS in TEXT mode

For example, send "Hello" to 02128748612

Set the short message mode in TEXT mode:

> AT+CMGF=1

Set the character mode as GSM mode:

> AT+CSCS="GSM"

Set the address of short message service center:

> For Shanghai,China，the address is +8613800210500

> AT+CSCA="+868613800210500"，145

Set the related parameters for sending short message:

> AT+CSMP=17，167，0，240   **//** The four parameters are FO, VP, PID and DCS

Send　　　AT+CMGS="10602128748612"   // Enter the PHS number(add 106) directly

➢ Hello[ctrl-Z]

User can send the English short message of **TEXT** mode to PHS following the above mentioned example, and change the address of short message service center，change the PHS number and the message content.

2.7 SMS Status Report（in PDU mode）

For example: Send "你好" To 13512503439

Set the short message mode as PDU mode:

> AT + CMGF= 0

Set the character mode as UCS2:

> AT + CSCS="UCS2"

Set the address of short message service center:

> For Shanghai,China,   the address is +8613800210500

AT+CSCA="002b0038003600310033003800300030003200310030003500300030",
145

Set SMS-STATUS-REPORTs:

       AT + CNMI = 2,1,0,1,0

SMS-STATUS-REPORTs are routed to the TE using unsolicited result code: +CDS:<length>
       <CR><LF><PDU>(PDU mode enabled)

Send   AT + CMGS = 019   // The decimal length of PDU，don't include SMSC

>0031000D91683115523034F9000801044f60597d[CTRL+Z]

Return result code:

 +CMGS: 121

 OK

 +CDS: 26

 0891683108200105F006790D91683115523034F96090027183923360900271839323 00

2.8 SMS Status Report（in TEXT mode）

For example: Send "Hello" To 13701769511

Set the short message mode as TEXT mode:

       AT + CMGF= 1

Set the character mode as GSM:

       AT + CSCS="GSM"

Set the address of short message service center:

         For Shanghai,China，the address is +8613800210500

         AT+CSCA="+8613800210500"，145

Set SMS-STATUS-REPORTs:

       AT + CNMI = 2,1,0,1,0

Set the related parameters for sending short message:

       AT+CSMP=49，167，0，241   // The four parameters are FO, VP, PID and DCS

Send   AT + CMGS = "13701769511"

>Hello[CTRL+Z]

Return result code:

+CMGS: 139

OK

+CDS: 6,139,"+8613701769511",145,"06/09/25,17:31:06+32","06/09/25,17:31:06+32",0

3 Appendix A: Convert between in GB code and UCS2 code

3.1 Introduction:

This file descript that how to convert between window and UCS2，including convert rules between GB code and Unicode.

3.2 Convert rules:

3.2.1 Convert characters from PC to module

1. Character less than 128 (character as same as 16bit Unicode code, do not need to convert), example: 0x12 to Unicode: 0x0012.

2. Character more than 127,

    1) Can convert 8bit character string in windows to 16bit GB code，

       Example：0x87, 0x10 to GB code： 0x8710；

    2) Convert 16bit GB code to 16bit Unicode code：refer to list

3. at last, convert Unicode to UCS2 format, and split to IRA code (means one Unicode code be split to four 8bit character),

    example：Trans 0x248E to IRA character as (character "2" (0x31), "4" (0x34), "8" (0x38), "E" (0x45))； then can send UCS2 format data (finial data be send to serial port)。

3.2.2 Convert characters from module to PC.

1. Convert UCS2 format (four 8bit one group) to 16bit Unicode code.

    Example：UCS2 format character string ("2","4","7","E") to 16bit Unicode：0x247E；

2. Convert 16bit Unicode to 16bit GB code：refer to list；

3. Finally，convert 16bit GB code to 8bit windows character；

    If 16bit GB code less than 128，then convert to 8bit windows character directly,

      example： 0x0054 (GB code) to 0x54 (window character)；

               0x0012 (GB code) to 0x12 (window character)；

    If 16bit GB code more than 127，than split to two 8bit character first，

     example：0x8710 (GB code) to 0x87, 0x10 (window character).

4 Appendix B: Source code

4.1 GB code to Unicode code:

1．Convert Program：

```
/***********************************************************************

Function:：  convert GB code to Unicode code

Parameter：GBCode（16bit standard GB code）

Return:      16bit standard Unicode code

Notes：       this function only be convertred when GB Code is more than 127，when GB Code is
                less

              than 128，can be convert to Unicode code directly.

***********************************************************************/

Int16 GB2Unicode(Int16 GBCode)

  {

    WORD unicode;

    BYTE high, low;

    high = (GBCode & 0xff00)>>8;

    low = GBCode & 0x00ff;

    unicode = GB_TO_UNICODE_TABLE[(high - 0xa0) * 100 + (low - 0xa0) - 101];

    return(unicode);

  }
```

2．Example（Only for GB code more than 127）：

0x0D2BB (GB code)   to   0x4E00(Unicode code)；

0x0B6A1 (GB code)   to   0x4E01(Unicode code)；

0x0C6DF (GB code)   to   0x4E03(Unicode code).

4.2 Unicode code to GB code:

1．Convert program

```
/***********************************************************************

* Function： Convert Unicode code to GB code

* Parameter： Unicode code(16bit standard Unicode code)

*return：      16bit standard GB code

***********************************************************************/

Int16 Unicode2GB(WORD Unicode)

 {
```

```
WORD QWCode, GBCode;

BYTE hi, low;

if(Unicode >= 0x4e00)

 {

    if(Unicode == 65306) // GB code for modify ":  "

      {

         GBCode = 41914;

      }

    else if(Unicode == 65307) // GB code for modify";  "

      {

         GBCode = 41915;

      }

    else if(Unicode == 65281) // GB code for modify"!  "

      {

         GBCode = 41889;

      }

    else if((Unicode<=0xFF5E)&&(Unicode>=0xFF01))

      {                  //equal to ASCII code range 0x21~0x7E

         GBCode = Unicode - 0xFEE0;

      }

    else

      {

         Unicode = Unicode - 0x4e00;

         QWCode = UNICODE_To_GB_Table[Unicode];

         hi = QWCode / 100 + 0xa0;

         low = QWCode % 100 + 0xa0;

         GBCode = (hi << 8) + low;

      }

       return(GBCode);

   }

  else

    {    /* verify character code*/

      if(Unicode == 12290)        // return to full stop

        {

           return(41379);

        }

      else if(Unicode == 12288)     // modify display of 0xA1 character, return to blank

           {
```

```
            return(32);
        }
    else if(Unicode == 0x300e)   // modify display of  『character
        {
          return(41402);
        }
    else if(Unicode == 0x300F) // modify display of  』character
        {
          return(41403);
        }
    else
        {
          return Unicode;
        }
    }
}
```

2. Convert example：

0x4E00(Unicode code)   to   0x0D2BB(GB code)；

0x4E01(Unicode code)   to   0x0B6A1(GB code)；

0x4E03 (Unicode code)   to   0x0C6DF(GB code).

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