# SR-FRS-1W

Wireless Transmit_Receive & Data Transfer module

VHF(136M-174M)

UART communication protocol

VER100
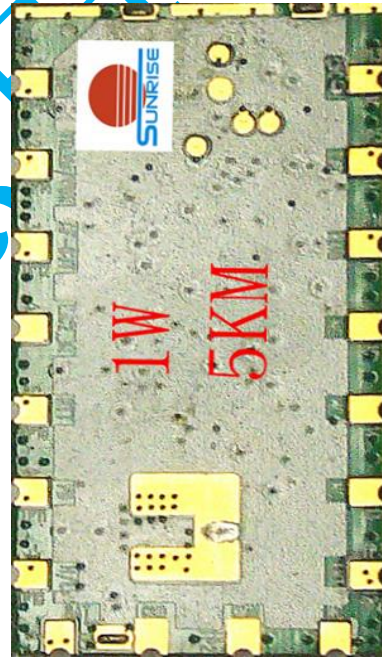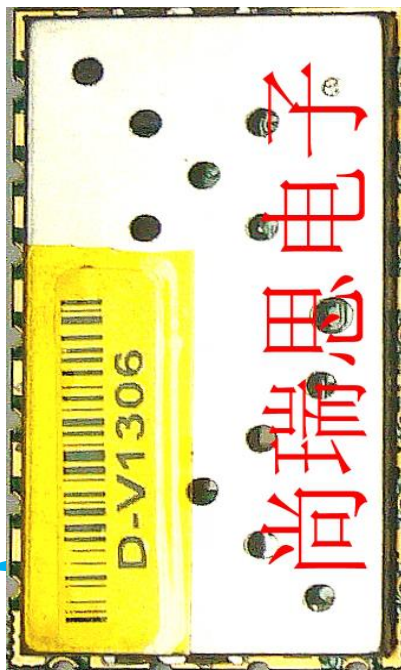
Date: 2013-3-1

1 Outline

SR-FRS-1W(VHF)   module has a standard AT command interface, it is easily to communicate with and control the module;The AT command involved all the inquiry and control   to the module, You may select the command to use as needed.

1.1 AT command type

1) Command without parameter：

AT＋<command>,   eg.：   AT+DMOCONNECT

2) Command with parameter：

AT＋<command>=<par1>,<par2>,<par3>…

3) Response command format are as below :

<CR><LF><command string><CR><LF>

<CR> Enter，0x0D

<LF> Newline，0x0A。

1.2 AT Command format

All the AT command started with "AT", And ended with<CR>。

The UART port default setting are as below:

- ◆   8 bit data,
- ◆   1 bit stop,
- ◆   without parity ,
- ◆   CTS/RTS,
- ◆   9600 baut

AT command response format：

<CR><LF><command string><CR><LF>

2   The communication command   format

2.1   The command frame format define

The communication format are as   AT instruction。

All data are as **ASCII** code, except the Length of SMS are **Hex** code.

The control command format：

AT+DMOXXX

The module response command format:

+DMOXXX

2.2 The control command list

2.2.1 AT+DMOCONNECT   (shake hand command)

Description	The shake hand command is used for verify whether if the module runs normally ；if the host can't get the module response up to 3 times, Host should power off the module, then power on again.	
Command	AT+DMOCONNECT	
Example	Host Command	**AT+DMOCONNECT**
	Module Response command	**+DMOCONNECT:0** Success **+DMOCONNECT:1** Failure

2.2.2 AT+DMOSETGROUP   (Group setting command)

Description	Bandwidth, frequency, CTCSS, SQ setting command;	
Command	AT+DMOSETGROUP=GBW，TFV，RFV，RXCXCSS，SQ,TXCXCSS,FLAG	
Example	Host Command	AT+DMOSETGROUP=0,450.0250,450.0250,1,2,1,0
	Module Response command	+DMOSETGROUP:0 Success +DMOSETGROUP:1 Failure
comment	**GBW：Bandwidth and DTMF transfer switch。** 　Bit0　　0:　Narrow　　　　1:　Band 　Bit1　　0:　Disable DTMF　1:　Enable DTMF	
	TFV：Transmit frequency: 　VHF: 136M – 174M HZ （It should be the integer multiple of 6.25K or 5K ）	
	RFV：Receive frequency： 　VHF: 136M – 174M HZ （It should be the integer multiple of 6.25K or 5K ）	
	RXCXCSS ：CTCSS/CDCSS　，（00-121）　for receive **TXCXCSS** ：CTCSS/CDCSS　，（00-121）　for transmit 　00：　no coding 01-38：　CTCSS　（analog ） 39-121：CDCSS　（digital ）	
	FLAG：Bit0（Transmit Busy lock）　　　　0,OFF 1,ON 　　　　Bit1（Compression Expansion control）　0,OFF 1,ON 　　　　Bit2（Transmit Power select）　　0,High 1,Low	
	SQ：0-8；　Squelch level 　（0：Monitor mode）	

2.2.3 AT+DMOAUTOPOWCONTR (Auto power save command)

Description	Module auto power save setting	
Command	AT+DMOAUTOPOWCONTR=X	
Example	Host command	AT+DMOAUTOPOWCONTR=0
	Module Response command	+DMOAUTOPOWCONTR:**0** Success +DMOAUTOPOWCONTR:**1** Failure
comment	X: 0 Enable power save （default） 1 Disable power save	

Tips：

1. When for message sending/Data transfer application，Please disable power save for fast

    transmit and receive。

2. When for VOX application, Please disable power save.

2.2.4 AT+DMOVERQ   (Inquiry module version command)

Description	Inquiry the module software version	
command	AT+DMOVERQ	
Example	Host command	AT+DMOVERQ
	Module Response command	+DMOVERQ：V1.0
comment	The response of module is the module software version.	

2.2.5 AT+DMOSETVOLUME   (Volume setting command)

Description	Volume setting	
Command	AT+DMOSETVOLUME=X	
Example	Host command	AT+DMOSETVOLUME=1
	Module response command	+ DMOSETVOLUME：**0** Success + DMOSETVOLUME：**1** Failure
Comment	X： 1-9 （default: 8）	

2.2.6 AT+DMOSETVOX   (Acoustic control command)

Description	Acoustic control setting	
Command	AT+DMOSETVOX=X	
Example	Host command	AT+DMOSETVOX=6
	Module response command	+ DMOSETVOX：**0** Success + DMOSETVOX：**1** Failure
Comment	X：Acoustic control level（0-8） （0: Means VOX OFF, default value）； LEVEL1=12MV LEVLE5=7MV LEVEL8=5MV	

Tips:

1) The number more big, the sensitivity more high;
2) When VOX   ON,   the Auto power off should be disabled,
   that is : AT+DMOAUTOPOWCONTR=1;

2.2.7 AT+DMOSETMIC   (Microphone sensitivity   & Voice scram setting

   command)

Description	Microphone sensitivity & Voice scram setting command	
Command	AT+DMOSETMIC=MICLVL, SCRAMLVL	
Example	Host command	AT+DMOSETMIC=1,0,0
	Module response command	+ DMOSETMIC：0 Success + DMOSETMIC：1 Failure
Comment	MICLVL：Mic sensitivity level （1-8）, default value is 6 ; The lever is more big ,and the sensitivity is more high; SCRAMLVL：Voice scram（0-8.) 0 : Disable voice scram (default : 0) 1-8: It means 8 different encryption mode；	

2.2.8 **For Data transfer, Please be noted that there are two different function version for this command：**

1）Short message transfer/Data transfer ；

2）DTMF；

The two data transfer mode do not exists at the same time; only one supported in the module.

1）AT+DMOMES (Short message sending / Data transfer command)

Description	Host send message or data to module for transmit	
Command	AT+DMOMES=[Message Lenth]XXX	
Example	Host command	AT+DMOMES=7ABCDEFG (41 54 2B 44 4D 4F 4D 45 53 3D 07 41 42 43 44 45 46 47 0D 0A)
	Module response command	+ DMOMES:0 Success + DMOMES:1 Failure
Comment	[Message Lenth]： the message length（Max 100 Bytes），it is HEX code, only one Byte.	
	XXX：is the message contents.	

Tips：

1. For fast transmit and receive SMS， Please disable Auto power off;

    That is : (AT+DMOAUTOPOWCONTR=1);

2. [Message Lenth] is HEX code.

    If send the command from PC, Please be noted that , once type the command by "**TEXT**", the

    [Message Lenth] would be treated as one or two bytes, it caused the wrong message be sent.

    So, it is necessary to modify the message length into one byte by hand under the "HEX" mode

    before send the message.

    For example: AT+DMOMES=7ABCDEFG

              The length number 7 would be treated as 37;

2) AT+DMOSETDTMF   (DTMF command)

Description	DTMF setting command	
Command	AT+DMOSETDTMF=xxxxxxx	
Example	Host command	AT+DMOSETDTMF=123456
	Module response command	+ DMOSETDTMF：0 Setting success + DMOSETDTMF：1 Setting failure
Comment	XXXXXXX: is DTMF number（16 DTMF）, （0~9，A~F）	

2.2.9   +DMOMES   (The module received the message and automatically send to HOST)

Description	The module received the message and automatically send to HOST	
Command	+DMOMES=[Message Lenth]XXX	
Example	Module send the message to Host	+DMOMES =7ABCDEFG (2B 44 4D 4F 4D 45 53 3D 07 41 42 43 44 45 46 47 0D 0A)
	Host response to Module	AT+DMOMES：0 Success AT+DMOMES：1 Failure
Comment	[Message Lenth]：is the message length(Max 100 bytes)，**HEX** code。	
	XXX：is the message contents.	

Tips:

1. If the message length is Odd number, a "space" should be added behind the last character of message;