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SR105V

Walkie Talkie Transceiver /Data transfer Module

VHF(136M-174M)

DATA SHEET

(V303)

DATE: 2021-3-1

Room A609, Bay area artificial intelligence Industrial Park,
Baoan District, Shenzhen City, Guangdong Province, China

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1. Product Outline

The SR105V (UHF) is a low cost but high performance integrated walkie talkie module. Users only need to connect external audio amplifiers, microphone or speaker with this module ,then it can work as a small walkie talkie with 0.5W output . In open area, it can come to performance of 3Km communication.

Besides the excellent voice intercom, The more important feature is this module has the data/SMS transfer ability; up to 70 byte can be sent at one time; it is compliance with the standard UART transfer protocol;

The key feature is its ultra small size: 15*25*3.0MM, it is easy to be embed into other system such as mobile phone, MP3,MP4,etc

2. Product performance

- FM demodulation technique Based on digital signal processing technology;
- Frequency Range：VHF 136M-174MHZ
- Frequency step：5K/6.25K/12.5K/25K;
- RF Output Power： 0.5W
- voice encryption (scrambling): 8 type.
- Voice Compression- Expansion ；
- SMS Receive /Transformer，The wireless Baut : 1200;
- CTCSS（38 group）+ CDCSS（83 group） ；
- DTMF encode and decode. **(Customer order)**
- RSSI check. (new added)
- Automatic elimination tail ；
- Volume adjustable（1-8）；
- Vox level adjustable（0-8）；
- SQ level adjustable（0-8）；
- MIC sensitivity level adjustable（1-8）
- The ultra low power dissipation in Sleep Mode（0.1uA）;
- Power supply ： DC 3.3～5.0V , recommend to be 3.6V-4.2V

- Ultra small size：15*25*3.0 MM；
- Communication distance：more than 3 KM in open area . The real distance based on many conditions.

Applications：

portable intercom and paging systems；

wireless data transmission；

mobile phones and other embedded in radio functions product 。

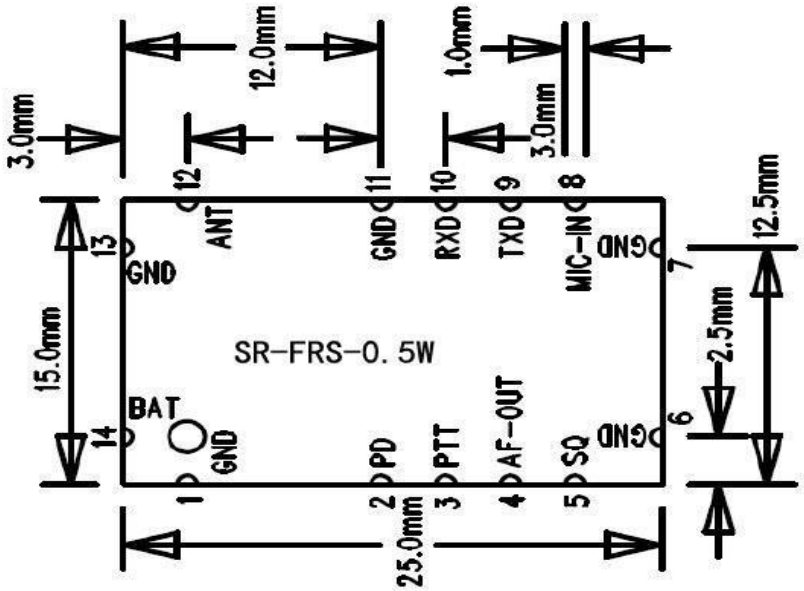
Portable walkie-talkie,

Outdoor sports equipment,

Building security,

Audio monitor system

3. Module mechanical size

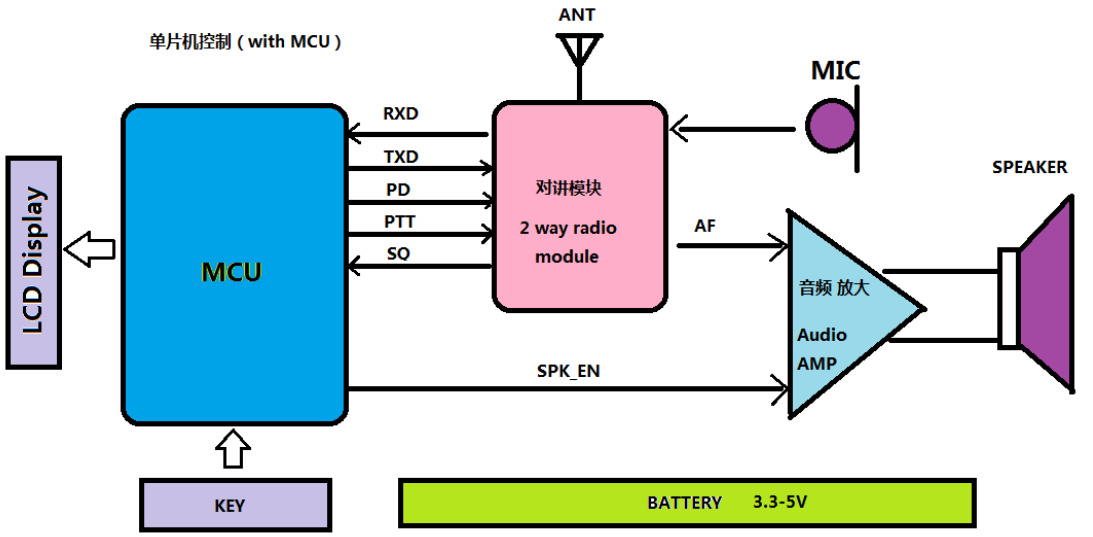


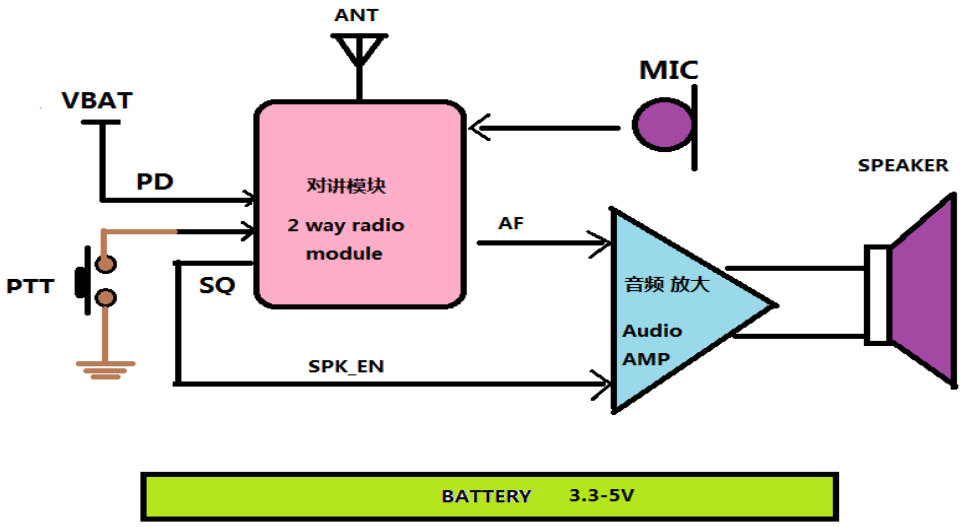
TOP VIEW

4. Module pin assignment

Pin name	**Pin number**	**Function description**
GND	1	GND
PD	2	Module power switch 0： Power off 1： Power on
PTT	3	PTT control 1：Receive； 0：Transmit
AF_OUT	4	Audio output
SQ	5	Squelch control 0: active 1:inactive
GND	6	GND
GND	7	GND
MIC_IN	8	Microphone input
TXD	9	UART_TXD
RXD	10	UART_RXD
GND	11	GND
ANT	12	Rf Antenna input;
GND	13	GND
BAT	14	Power supply: DC 3.3V - 5V

5. Typical application Block diagram





6. Electrical Characteristics

6.1 DC Electrical Characteristics (Recommended)

Symbol	Description	Min	Typical	Max	unit
VBAT	Power supply	3.3	4.0	4.5	V
Tamb	Ambient temperature	-20	27	60	℃
	Internal Initialize Time when power on	136	500		ms
	CMOS low level	0		0.6	V
	CMOS high level	2.4		3	V

Notes: VCC = 3V(for control port voltage)

6. 2 DC Electrical Characteristics (Maximum)

Symbol	description	Min	Typical	Max	unit
VBAT	Power supply	3.3	4.2	5.0	V
Tamb	Ambient temperature	-30		85	℃
I_{IN}	I/O input current	-5		5	mA
V_{IN}	I/O input voltage)	-0.3		3.3	V

6.3 Power Characteristics

(Test conditons: VBAT = 4.0V, TA= -25 to 85 ℃)

Work mode	description	Test condition	Typical	unit
Continuous Receive	The receiver is in normal work mode	Input 150.050MHZ, RF level -47dBm， AF=1KHz,MOD=1.5KHz	65	mA
Continuous Transmit	The transmitter is in normal work mode	Input 1KHz Modulated signal	330	MA

Receive Squelch power Save mode	The receiver is in power save state with standby condition.		12	mA
Deep sleep (PDN Is low)	Both the receiver and transmitter are all power off.	Within 500ms finish the power on process， switch to continuous receive/transmit mode。	0.1	uA

6.4 Overall electrical performance specifications

Frequency Range（MHz）	UHF:136-174
Channel spacing（KHz）	25 / 12.5KHZ
Antenna Impedance (Ω)	50
Operating temperature（℃）	-20～+60
Frequency Stability（ppm）	±2.5

6.5 Receive Performance

(unless special comment，Test condition VBAT = 4.0 V, TA = -25℃)

Symbol	description	Test condition	Min	Typical	Max	unit
		UHF	136		174	
Sensitivity	Reference sensitivity	12dB S/N for Audio output	-120	-122		dBm
	Squelch Sensitivity	Adjustable by software		-120		
	Received SNR	1.5KHZ Deviation	52	55		
	Adjacent Channel Selectivity	12.5KHz Deviation	58	60		dB
	Intermodulation Immunity	12.5KHz Channel spacing	55	60		
	Spurious response rejection	12.5KHz Channel spacing	55	55		dB
AF OUT	Audio Output (RMS)	Fo=1KHz Adjustable by software		150	150	MV
	Audio output distortion	Fo=1KHz		1	3	%
	Audio response	300HZ 500HZ 1000HZ 2500HZ 3000HZ		+2 +4 0 -7 -13		

6.6 Transmit Performance

(unless special comment，Test condition VBAT = 4.0 V, TA = -25°C)

Symbol	Description	Test condition	Min	Typical	Max	unit
			136		174	MHZ
Pout	Rf Transmit power		350	136	500	MW
	Transmit current			300	350	mA
	Maximum modulation frequency deviation limit	Narrow bandwidth Broadband			2.5 5.0	KHZ KHZ
	Modulation sensitivity	8 Level adjustable by software	5	7	12	MV
	Audio modulation distortion			1	3	%
	Modulation characteristics	300HZ 500HZ 1000HZ 2500HZ 3000HZ	-10 -6 0 5 6			DB DB DB DB
SNR	S/N		40	42	45	dB
	Carrier suppression			-60		dBc
	IM3 Suppression			-60		dBc
	Adjacent Channel Power	12.5KHz offset		-65		dBc
	Stray radiation			-36		dBc

7. Comment：

1、 The default parameter for this module after power on are as bellow:

GBW=12.5KHZHZ，

UHF:

TFV=150.050MHZ,

RFV=150.050MHZ，

CTCSS=67HZ， (For both Transfer and receive)

SQ=2,

Scramble: OFF

VOX: off

2、 The PTT pin cann't be pulled to Lo when in data transfer mode.

3、 PD must be set to High level for module running.

4、 UART command should be send after 0.5S when module power on.

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SR-105V

Walkie Talkie Transceiver & Data Transfer module

UHF(136M-174M)

UART communication protocol

VER302

Room A609, Bay area artificial intelligence Industrial Park,
Baoan District, Shenzhen City, Guangdong Province, China

1 Outline

SR-105V module has a standard AT command interface, it is easily to communicate with and control the module;

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>

1.3 UART communication port logic level

3V TTL.

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, unless special defined.

The control command format：

AT+DMOXXX

The module response command format:

+DMOXXX

2.1.1 SR-105V can support both **Original** instruction and **Reduced** instruction. User can select it to use.

2.1.2 Reduced Instruction Set:

AT+DMOGRP	Setting for : frequency, CTCSS， band width, disable TX if busy, transmit power
AT+DMOSAV	Auto power save setting
AT+DMOVOL	Audio output level setting
AT+DMOVOX	VOX setting
AT+DMOFUN	Setting for：SQL，MIC sensitivity，TOT，companding，scramble
AT+DMOMES	DATA/SMS sending
AT+DMODTF	DTMF encode /decode **(Customer order, it is invalided in normal released module)**
AT+DMOCONT	Shake hand command, uart connection test

2.1.3 Original Instruction Set

AT+DMOSETGROUP	Setting for : frequency, CTCSS，band width, SQL,disable TX if busy, transmit power, companding
AT+DMOAUTOPOWCONTR	Auto power save setting
AT+DMOSETVOLUME	Audio output level setting
AT+DMOSETVOX	VOX setting
AT+DMOSETMIC	MIC sensitivity，scramble, TOT setting
AT+DMOMES	DATA/SMS sending
AT+DMOCONNECT	Shake hand command, uart connection test

2.1.4 Common instruction set

AT+DMOREST	Restore to factory setting.
AT+DMOEND	Tail Tone Elimination set (customer order)
AT+DMORSSI	RSSI inquiry
AT+DMOVERQ	Version inquiry

2.2 The origial Instruction Set list

2.2.1 AT+DMOSETGROUP (Group setting command)

Description	Bandwidth, frequency, CTCSS, SQ setting command;	
Command	AT+DMOSETGROUP=GBW,RFV,TFV,RXCXCSS,SQ,TXCXCSS,FLAG	
Example	Host	**AT+DMOSETGROUP=0,150.0250,150.0250,1,2,1,0**
	Module Response command	**+DMOSETGROUP:0** Success **+DMOSETGROUP:1** Failure
comment	**GBW**：Bandwidth。 0：Narrow 1：Wide	
	RFV：Transmit frequency: UHF: 136.0000M-174.0000M HZ （It should be the integer multiple of 6.25K or 5K ）	
	TFV：Receive frequency: UHF: 136.0000M-174.0000M 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 ）	
	SQ： Squelch level setting Level: **0-8 ;** **0:** into monitor mode	
	Flag ： (FLAG = bit1 * 2 + bit0) **Bit0**（Busy Lock switch） **0，OFF 1，ON** **Bit1**（Companding switch） **0，OFF 1，ON** ~~**Bit2 (Transmit power setting) 0, High 1, LO (invalid for 105V)**~~	

2.2.2 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.

2.2.3 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）	

2.2.4 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)

2.2.5 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
	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；	

2.2.6 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 **70** 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;

   Should modify the length to be 0x7 by hand;

   AT+DMOMES=12ABCDEFABCDEF

   The length number 12 would be treated as 31 32

   Should modify the length to be 0xC by hand;

2.2.7 +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 =**7**ABCDEFG (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 70 bytes)，**HEX** code。	
	XXX：is the message contents.	

2.2.8 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

2.3 The Reduced Instruction Set

2.3.1 AT+DMOGRP (Group setting command)

Description	Bandwidth, frequency, CTCSS, SQ setting command;	
Command	AT+DMOGRP=RFV,TFV,RXCT,TXCT,Flag,Flag1	
Example	Host Command	AT+DMOGRP=150.02500,150.02500,RR,TT,0,0 **(enter) RR,TT is HEX code, it need change to HEX mode, and instead with correct CTC/CDC coding.**
	Module Response command	**+DMOGRP:0** Success **+ DMOGRP:1** Failure
comment	**TFV**：Transmit frequency: UHF: 136.0000M-174.0000M HZ （It should be the integer multiple of 6.25K or 5K ）	
	RFV：Receive frequency： UHF: 136.0000M-174.0000M HZ （It should be the integer multiple of 6.25K or 5K ）	
	RXCT ： CTCSS/CDCSS ， for receive coding **(2 Bytes, HEX code)** **TXCT** ： CTCSS/CDCSS ， for transmit coding **(2Bytes, HEX code)** RXCT lower 4 bit is for decimal part , if no setting then filled with “FF FF” Eg: CTCSS: 67.0 HZ D0D1 = 0X70 0X06 CDCSS: D023N D0D1 = 2380 D023N D0D1 = 4482 D023N D0D1 = 23C0 D023N D0D1 = 51C2	

	FLAG ： (ASCII format) Bit0 : busy locking / 0:OFF 1:ON Bit1: band setting / 0:Narrow 1: Wide FLAG = bit1 * 2 + bit0 FLAG 1：(ASCII format) ~~Bit0 : transmit power setting/ 0: High 1: Low (SR105V invalid)~~ Invalid for 0.5W, please set to be “0”. FLAG1 = 0 ;

1. Command explanation:

Important notice: for “AT+DMOGRP=RFV,TFV,RXCT,TXCT,Flag,Flag1”, All the command is TEXT format, while the RXCT,TXCT is HEX format.

Eg. Frequency : 150.02500 CTCSS : 67.0 (HEX coding:70 06)

A) If input the command by HEX

41 54 2B 44 4D 4F 47 52 50 3D 31 35 30 2E 30 32 35 30 30 2C 31 35 30 2E 30 32

A T + D M O G R P = 1 5 0 . 0 2 5 0 0 , 1 5 0 . 0 2

35 30 30 2C 70 06 2C 70 06 2C 30 2C 30 0D 0A

5 0 0 , R R , T T , 0 , 0 (Enter)

Find the R R T T position ,instead with 70 06

B) If input the command by TEXT,

1) Input the command by TEXT

AT+DMOGRP=150.02500,150.02500,RR,TT,0,0(Enter)

2) Change all the TEXT to HEX format:

41 54 2B 44 4D 4F 47 52 50 3D 31 35 30 2E 30 32 35 30 30 2C 31 35 30 2E 30 32 35 30 30 2C 52 52 2C 54 54 2C 30 2C 30 0D 0A

R R T T

3) Find the R R, T,T position, then instead the HEX with correct CTC/CDC coding., then send the command.

41 54 2B 44 4D 4F 47 52 50 3D 31 35 30 2E 30 32 35 30 30 2C 31 35 30 2E 30 32 35 30 30 2C 70 06 2C 70 06 2C 30 2C 30 0D 0A

R R T T

2. Comment for CTCSS /CDCSS setting:

A) for analog CTCSS setting

67.0 67.0 →06 70→ D0 D1= 70 06
250.3 250.3 →25 03→ D0 D1= 03 25

B) for digital CDCSS setting

For Positive CDCSS code: MSB of D1 is 8;

Eg: D023N 023→8023→ D0 D1=23 80
D244N 244→8244→ D0 D1=44 82

For Negative CDCSS code: MSB of D1 is C;

Eg: D023I 023→C023→ D0 D1=23 C0
D251I 251→C251→ D0 D1=51 C2

3) FLAG /FLAG1 Setting

BIT1 BIT0 is BCD code;

FLAG = BIT1 * 2 + BIT0

FLAG1 = BIT1 * 2 + BIT0

Eg:

1) FLAG:

Bit1 = 1; bit0 = 0

The BCD of FLAG is 2 + 0 = 2; FLAG = 2;

2) FLAG:

Bit1 = 1; bit0 = 1

The BCD of FLAG is 2 + 1 = 3; FLAG = 3;

2) FLAG:

Bit1 = 0; bit0 = 1

The BCD of FLAG is 0 + 1 = 1; FLAG = 1;

2.3.2 AT+DMOSAV (Auto power save command)

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

Comment：

3. When for message sending/Data transfer application，Please disable power save for fast transmit and receive。
4. When for VOX application, Please disable power save.

2.3.3 AT+DMOVOL (Volume setting command)

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

2.3.4 AT+DMOVOX (Acoustic control command)

Description	Acoustic control setting	
Command	AT+DMOVOX=X	
Example	Host command	AT+DMOVOX=0**(enter)**
	Module response command	+DMOVOX: 0 Success +DMOVOX: 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;

2.3.5 AT+DMOFUN (extension function setting)

Description	Microphone sensitivity & Voice scram setting command	
Command	AT+DMOFUN=SQL，MICLVL, TOT，SCRAMLVL ,COMP	
Example	Host command	AT+DMOFUN=3,1,0,0,0**(enter)**
	Module response command	+DMOFUN：0 Success +DMOFUN：1 Failure
Comment	MICLVL：Mic sensitivity level (1-8), default value is 6 ; The lever is more big ,and the sensitivity is more high;	
	SQ：Squelch level：(**0-9**, 0：Monitor mode） MICLVL：Mic sensitivity level: (**0-7**) TOT：Transmit timer limit（**0~15** minute , 0: means OFF） SCRAMLVL：voice scram (**0-7**, 0: means OFF) COMP: Compress and extend setting: 0: OFF. 1: ON	

2.3.6 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**(enter)** (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 **70** Bytes)，it is HEX code, only one Byte.	
	XXX：is the message contents.	

Tips:

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

   That is : (AT+DMOSAV =1);

4. [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;

   AT+DMOMES=12ABCDEFABCDEF

   The length number 12 would be treated as 31 32

2.3.8 +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 **70** 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;
2. Host response to Module command is not must.

2.3.9 AT+DMODTF Encode DTMF for sending

NOTE: it is customer order, it is invalid in normal released module

description	Sending DTMF number 0-9 or letter ABCD*#	
instruction	AT+DMODTF=XY	
example	**AT+DMODTF=09**	
response	+DMODTF: 0 Succeed	+ DMODTF: 1 failure
comment	XY sending number 00 sending DTMF code: 0 01 sending DTMF code: 1 02 sending DTMF code: 2 03 sending DTMF code: 3 04 sending DTMF code: 4 05 sending DTMF code: 5 06 sending DTMF code: 6 07 sending DTMF code: 7 08 sending DTMF code: 8 09 sending DTMF code: 9 XY sending letter: 10 sending DTMF code: A 11 sending DTMF code: B 12 sending DTMF code: C 13 sending DTMF code: D 14 sending DTMF code: * 15 sending DTMF code: #	

2.3.10 +DMODTF Decode DTMF for receive

NOTE: it is customer order, it is invalid in normal released module

description	Module decode the DTMF code and send it to HOST
instruction	+DMODTF：XY
example	**+DMODTF：09**
response	
comment	XY Decode for number 00 received DTMF code： 0 10 received DTMF code： 1 11 received DTMF code： 2 12 received DTMF code： 3 13 received DTMF code： 4 14 received DTMF code： 5 15 received DTMF code： 6 16 received DTMF code： 7 17 received DTMF code： 8 18 received DTMF code： 9 XY Decode for letter： 10 received DTMF code: A 11 received DTMF code: B 12 received DTMF code: C 13 received DTMF code: D 14 received DTMF code: * 15 received DTMF code: #

2.4 The common command list

2.4.1 AT+DMOVERQ (Inquiry module version command)

Description	Inquiry the module software version	
command	AT+DMOVERQ	
Example	Host command	AT+DMOVER(Enter)
	Module Response command	+DMOVERQ：105V-VXXX
comment	The response of module is the module software version.	

2.4.2 AT+DMOEND Tail tone elimination setting

(Customer order, no this setting in normal production)

description	Tail tone elimination setting
instruction	**AT+DMOEND**=X
example	**AT+DMOEND=0 (Enter)**
response	+DMOEND：0
commnet	X Enable or disable the tail tone . 0: Enable；(default) 1： Disable ；

Please pay attention to this commnad： Unless you have clear requirement，Do not disable the tail tone ， otherwise it will cause the reception side a bit noise when transmit side finished transmitting.

2.4.3 AT+DMOREST restore factory setting

description	Restore factory setting
instruction	**AT+DMOREST**
example	**AT+DMOREST (Enter)**
response	+DMOREST：0

comment	

2.4.4 AT+DMORSI Received signal strength query

description	**Received signal strength query**	
instruction	AT+DMORSI	
example	**AT+DMORSI (回车换行)**	
response	+ DMORSI:XXX	XXX is signal strength level, it is just for reference.
comment	XXX: 000-127 RX sensitivity : RSSI (Reference value) OFF <30 -120 036 -110 046 -100 055 -90 065 -80 075 -70 085 -60 094 -50 103 -40 115 -30 127 -20 127 -10 127 0 127	

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1. CTCSS 列表

CH	FREQ.	CH	FREQ.	CH	FREQ.
1	67.0	13	103.5	26	162.2
		14	107.2	27	167.9
2	71.9	15	110.9	28	173.8
3	74.4	16	114.8	29	179.9
4	77.0	17	118.8	30	186.2
5	79.7	18	123.0	31	192.8
6	82.5	19	127.3	32	203.5
7	85.4	20	131.8	33	210.7
8	88.5	21	136.5	34	218.1
9	91.5	22	141.3	35	225.7
10	94.8	23	146.2	36	233.6
11	97.4	24	151.4	37	241.8
12	100.0	25	156.7	38	250.3

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2．DCS 列表

CH	CODE	CH	CODE	CH	CODE	CH	CODE	CH	CODE
39	N023	58	N132	77	N265	96	N464	115	N712
40	N025	59	N134	78	N271	97	N465	116	N723
41	N026	60	N143	79	N306	98	N466	117	N731
42	N031	61	N152	80	N311	99	N503	118	N732
43	N032	62	N155	81	N315	100	N506	119	N734
44	N043	63	N156	82	N331	101	N516	120	N743
45	N047	64	N162	83	N343	102	N532	121	N754
46	N051	65	N165	84	N346	103	N546		
47	N054	66	N172	85	N351	104	N565		
48	N065	67	N174	86	N364	105	N606		
49	N071	68	N205	87	N365	106	N612		
50	N072	69	N223	88	N371	107	N624		
51	N073	70	N226	89	N411	108	N627		
52	N074	71	N243	90	N412	109	N631		
53	N114	72	N244	91	N413	110	N632		
54	N115	73	N245	92	N423	111	N654		
55	N116	74	N251	93	N431	112	N662		
56	N125	75	N261	94	N432	113	N664		
57	N131	76	N263	95	N445	114	N703		

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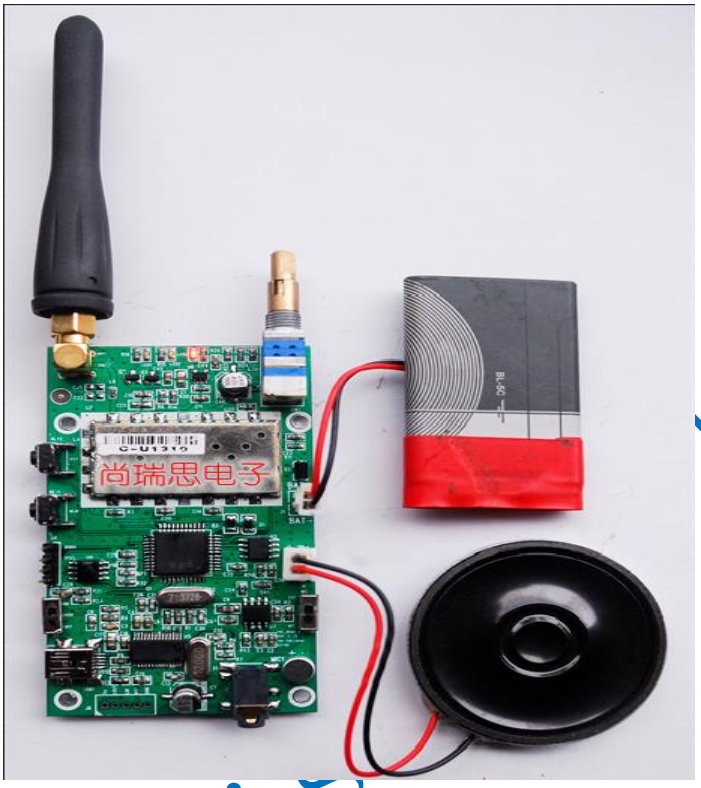
Appendix:

Demo board for SR105(UHF / VHF)

1. DEMO_B_0W5



1） Can be used for SR-FRS-1W and SR_FRS_0W5 module demonstration;
2） It can support both UHF（136M-174M） and VHF(136M-174M)；
3） Power ON/OFF, Volume adjust, Channel adjust 3 in 1 switch；
4） 16 Channels can be selected;
5） Enable or Disable VOX is easy by VOX switch control; The VOX sensitivity can be set via the PC;
6） Voice broadcast the channel number; Chinese/ English can be selected；
7） Monitor ON/OFF by [MON]key;
8） Voice intercom demo；
9） Data /SMS transfer demo；
10） Provide user interface: SQ,LINE_IN, LINE_OUT,PTT,GND;
11） Restore to be the factory setting;
12） USB for parameter setting by connect the demo board to the PC.

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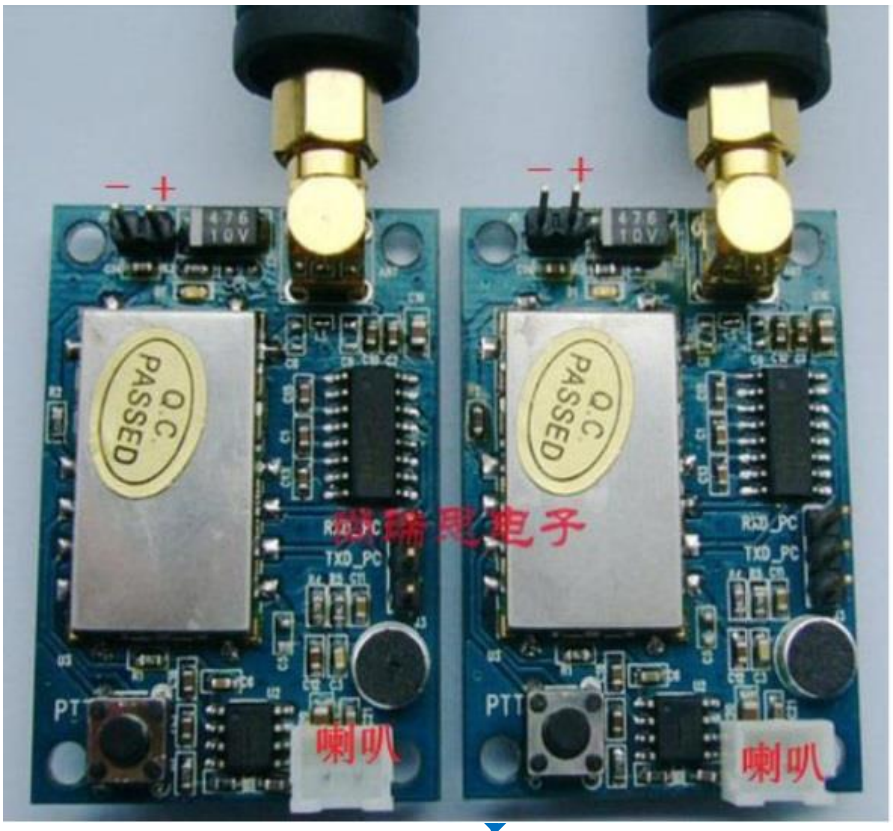
2. DEMO_A_0W5



1） Just for SR_FRS_0W5 module demonstration;
2） Support both UHF and VHF;
3） Without MCU, it can work alone;
4） Built in UART communication interface， It is easy to do the parameter setting or data transfer via PC;
5） Voice intercom demo;
6） Data transfer/Sms demo;
7） Only one default frequency;
8） The demo board size is very small;

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3. DEMO_D_0W5

1) The demo board can be used for SR_FRS_0W5, SR_FRS_1W, SR_FRS_2W module

demonstration;

2) It support both UHF and VHF;
3) LCD with 128X64 pix;
4) Encode switch with press switch make the operation is more easy;
5) All parameter can be set by the demo board itself or via the PC;
6) Both Tx frequency and Rx frequency can be set alone;
7) Both Tx CTCSS and Rx CTCSS can be set alone;
8) 100 channels;
9) Auto scan;
10) Monitor;
11) Many interface for the user;
12) Li battery charge;

If you want the complete specification for these demo board, please down load from our website or get it from us: