

1.Description:

DY-SV5W is an intelligent voice module developed by the division independently. It integrates I/O subsection triggering, UART serial port control, ONE_line single bus serial port control. Onboard 5W Class D amplifier circuit and can directly drive 4ohm 3~5W speakers.Support MP3,WAV decoding format. Max support 32Gbit(4MByte) TF card memory, can connect the computer to update TF card to store audio files via USB cable.3.5mm audio interface, U disk interface, Micro USB download interface, button module in one module

2.Features:

- 1>.Support MP3 and WAV decoding format.
- 2>.Support sampling frequency (KHz) : 8/11.025/12/16/22.05/24/32/44.1/48.
- 3>.24-bit DAC output, dynamic range support 90dB, SNR support 85dB.
- 4>.Support the FAT16/FAT32 file system, with the maximum support 32Gbit(4MByte) TF card and 32Gbit(4MByte) U-disk.
- 5>.Support UART serial port control voice broadcast function.It can control playback, pause, selections, turn up and down volume and other functions, the largest selection of 65535 songs.The baud rate is 9600 bit/s.
- 6>.Support I/O trigger function, 8bit I/O ports can trigger 8 musics or 8 I/O combinations to trigger 255 songs.
- 7>.Support One_line single bus serial port control, which can control playback, pause, selection, turn up and down volume and other functions.
- 8>.Support 3 configuration I/O for mode selection to make 7 work mode.
- 9>.Built in 5W Class D amplifier circuit and can directly drive 4ohm 3~5W speaker.

3.Module pin instructions:

No.	Pin Name	Instruction
1	5V-	Work Voltage Negative Pole
2	5V+	Work Voltage Positive Pole
3	TXD/IO0	IO trigger mode is input IO0;UART mode is TX.
4	RXD/IO1	IO trigger mode is input IO1;UART mode is RX.
5	IO2	IO trigger mode input IO2.
6	IO3	IO trigger mode input IO3.
7	IO4/ONE_LINE	IO mode input IO4;One_Line mode data receiver pin.
8	IO5	IO trigger mode input IO5.
9	IO6	IO trigger mode input IO6.
10	IO7	IO trigger mode input IO7.
11	BUSY	Output low level signal(0V) when playing and output high(3.3V) after playing.
12	GND	Ground

4.Work Mode Configuration:

Control Mode	Configuration Pin			I/O Function							
	CON3	CON2	CON1	IO7	IO6	IO5	IO4	IO3	IO2	IO1	IO0
I/O Integrated Mode 0	0	0	0	Key combination play, can play $2^8-1(255)$ Songs.							
I/O Integrated Mode 1	0	0	1	Level combination play, can play $2^8-1(255)$ Songs.							
I/O Independent Mode 0	0	1	0	Music 8	Music 7	Music 6	Music 5	Music 4	Music 3	Music 2	Music 1
I/O Independent Mode 1	0	1	1	Music 8	Music 7	Music 6	Music 5	Music 4	Music 3	Music 2	Music 1
UART Mode	1	0	0							RXD	TXD
One-Line Mode	1	0	0				TXD				
Standard MP3 Mode	1	0	1				RPT	EQ	P/P/MODE	PREV/V-	NEXT/V+

Note:

1>. "key combination play" : Return to the original high level after the corresponding level from I/O0-I/O7 output, similar to the key triggered once.Similar instantaneous switch.

2>. "Level combination play" :The trigger signal remains the same, similar to a self-locking switch.

3>.The difference between "I/O Integrated/Independent Mode 0" and "I/O Integrated/Independent Mode 1" :Mode 0 will continue playing the current song to the end after release level .Mode 1 will stop playing immediately after release level.

5.Mode operation instruction:

1>. I/O integrated mode 0(Key combination playing).

It will stop playing current song to the end after I/O0-7 release input signal(return to high) at 'I/O Integrated Mode 0;It will playing new song when get new input signal during playing and stop after end of song;It will play repeatedly if keep input;Busy pin will output valid signal(High) during playing.

Note: the song must be named for 5bit.

Music control:

B n								
1	1	1	1	1	1	1	0	00001.mp3
1	1	1	1	1	1	0	1	00002.mp3
1	1	1	1	1	1	0	0	00003.mp3
1	1	1	1	1	0	1	1	00004.mp3
1	1	1	1	1	0	1	0	00005.mp3

1	1	1	1	1	0	0	1	00006.mp3
1	1	1	1	1	0	0	0	00007.mp3
.....
0	0	0	0	0	0	0	0	00255.mp3

2>. I/O integrated mode 1(Level combination playing)

It will keep playing current song when get trigger signal.It will stop playing immediately after release level.Busy pin will output valid signal(High) during playing.

Note: the song must be named for 5bit.

Music control:

IO7	IO6	IO5	IO4	IO3	IO2	IO1	IO0	Song
1	1	1	1	1	1	1	0	00001.mp3
1	1	1	1	1	1	0	1	00002.mp3
1	1	1	1	1	1	0	0	00003.mp3
1	1	1	1	1	0	1	1	00004.mp3
1	1	1	1	1	0	1	0	00005.mp3
1	1	1	1	1	0	0	1	00006.mp3
1	1	1	1	1	0	0	0	00007.mp3
.....
0	0	0	0	0	0	0	0	00255.mp3

3>. I/O independent mode 0(Key independent controlling)

I/O0-I/O7 independently controls 8 songs.It will stop playing current song to the end after I/O0-7 release input signal(return to high);It will playing new song when get new input signal during playing and stop after end of song;It will play repeatedly if keep input;Busy pin will output valid signal(High) during playing.

Note: the song must be named for 5bit.

IO7	IO6	IO5	IO4	IO3	IO2	IO1	IO0	Song
1	1	1	1	1	1	1	0	00001.mp3
1	1	1	1	1	1	0	1	00002.mp3
1	1	1	1	1	0	1	1	00003.mp3
1	1	1	1	0	1	1	1	00004.mp3
1	1	1	0	1	1	1	1	00005.mp3
1	1	0	1	1	1	1	1	00006.mp3
1	0	1	1	1	1	1	1	00007.mp3
0	1	1	1	1	1	1	1	00008.mp3

4>. I/O independent mode 1(Level independent controlling)

I/O0-I/O7 independently controls 8 songs.It will keep play repeatedly specify the triggered song.It will stop playing immediately after release level.Busy pin will output valid signal(High) during playing.

Note: the song must be named for 5bit.

IO7	IO6	IO5	IO4	IO3	IO2	IO1	IO0	Song
1	1	1	1	1	1	1	0	00001.mp3
1	1	1	1	1	1	0	1	00002.mp3

1	1	1	1	1	0	1	1	00003.mp3
1	1	1	1	0	1	1	1	00004.mp3
1	1	1	0	1	1	1	1	00005.mp3
1	1	0	1	1	1	1	1	00006.mp3
1	0	1	1	1	1	1	1	00007.mp3
0	1	1	1	1	1	1	1	00008.mp3

5>. UART serial port mode

5.1>. Communication format

Adopt full duplex serial port communication;

Baud rate 9600, data bits 8, stop bit 1, check bit N.

Start code - command type - data length (n) - data 1- data n- and test (SM)

Command code: fixed to 0xAA.

Command type: used to distinguish the type of command.

Data length: the number of bytes of data in an command.

Data: the relevant data in the command, when the length of data is 1, means that there is only CMD and no data bits.

Test: it is low 8 bits of the sum of all the bytes. that is, When the starting code and the data are added, take out low 8 bits.

Data format: sent data or command, high 8-bit data is in front, low 8-bit is in the back.

5.2>. Communication protocol

The following is a data definition for the return and identification of the chip.

A. Playing State definition: the system is on the stop state when power on.

00(stop) 01(play) 02(pause)

B. Disk character definition: it is stopped after the switch disk.

USB:00 SD:01 FLASH:02 NO_DEVICE: FF.

C. Volume: the volume is 31grades, 0-30.The default is 20grade.

D. Play mode: the default is the single stop when power on.

Cycle for all songs (00) : play the whole songs in sequence and play it after the play.

Single cycle (01) : play the current song all the time.

Single stop (02) : Only play current song once and then stop.

Random play (03) : random play.

Directory loop (04) : play the songs in the current folder in order, and then play them after the play. The directory does not contain subdirectory.

Directory random (05): random play in the current folder, and the directory does not contain subdirectory.

Directory order play (06) : play the songs in the current folder in order and stop after the play. The directory does not contain subdirectory.

Sequential play (07) : play the whole songs in order and stop after it is played.

E. EQ definition: the default EQ is NORMAL(00).

NORMAL(00) POP(01) ROCK(02) JAZZ(03) CLASSIC(04)

F. Composition play definition: combination play is combined by filename. The

file requirements are stored under the "XY" file. You can change the name of the file you want to combine to two bytes, which is generally recommended as a number. Such as: 01. Mp3, 02. Mp3.

5.3>. Communication command

Control command:

Command	Command code	Return
Play	AA 02 00 AC	None
Pause	AA 03 00 AD	None
Stop	AA 04 00 AE	None
Previous	AA 05 00 AF	None
Next	AA 06 00 B0	None
Volume +	AA 14 00 BE	None
Volume -	AA 15 00 BF	None
Previous file	AA 0E 00 B8	None
Next file	AA 0F 00 B9	None
Stop playing	AA 10 00 BA	None

Setting Command:

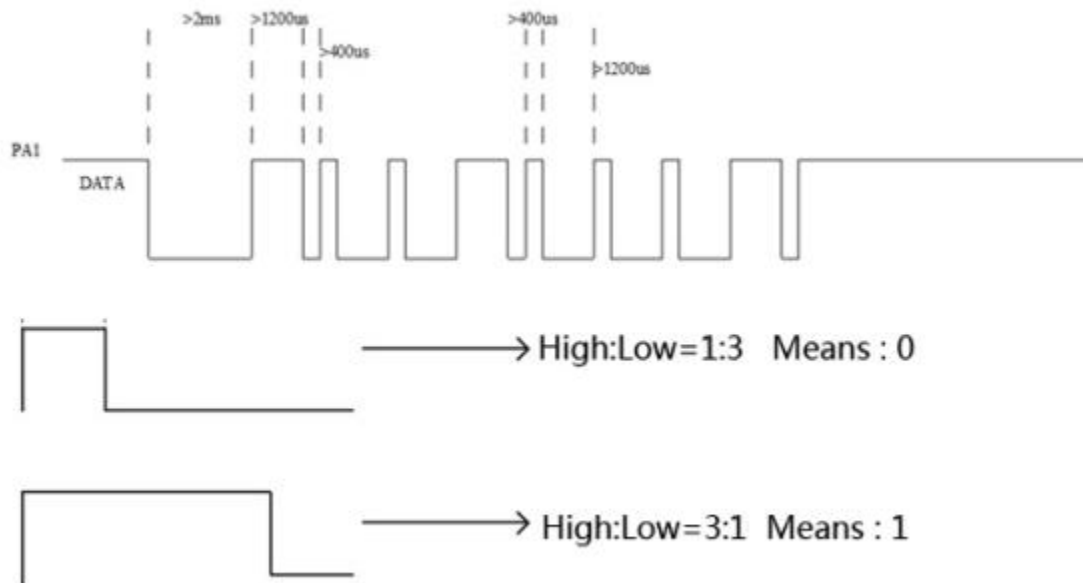
Command	Command code	Return	Remark
Set Volume	AA 13 01 VOL SM	None	VOL:0x00-0xFF
Set Loop mode	AA 18 01 Loop-mode SM	None	Loop-mode:0x00-0x07
Set Cycle times	AA 19 02 H L SM	None	H:0x00-0xFF L:0x00-0xFF
Set EQ	AA 1A 01 EQ SM	None	EQ:0x00-0x04
Specified Song	AA 07 02 S.N.H S.N.LSM	None	S.N.H:0x00-0xFF S.N.L:0x00-0xFF
Specified Path	AA 08 Length Drive Path SM	None	Length:0x00-0xFF Drive:0x00-0xFF Path:0x00-0xFF
Switch Specified Drive	AA 0B 01 Drive SM	None	Drive:0x00-0xFF
Specified song to be interplay	AA 16 03 Drive S.N.H S.N.L SM	None	Drive:0x00-0xFF S.N.H:0x00-0xFF S.N.L:0x00-0xFF
Specified path to be interplay	AA 17 Length Drive Path SM	None	Length:0x00-0xFF Drive:0x00-0xFF Path:0x00-0xFF
Select but no play	AA 1F 02 S.N.H S.N.L SM	None	S.N.H:0x00-0xFF S.N.L:0x00-0xFF

Query Command:

Command	Command code	Return
Query play status	AA 01 00 AB	AA 01 01, play status, SM
Query current online drive	AA 09 00 B3	AA 09 01, drive, SM

Query current play drive	AA 0A 00 B4	AA 0A 01, drive, SM
Query Number of songs	AA 0C 00 B6	AA 0C 02S.N.H S.N.L SM
Query current song	AA 0D 00 B7	AA 0D 02 S.N.H S.N.L SM
Query folder directory song	AA 11 00 BB	AA 11 02 S.N.H S.N.L SM
Query folder Number of songs	AA 12 00 BC	AA 12 02 S.N.H S.N.L SM

6>. One_line Single bus serial port mode
Waveform:



Command format:

Command(HEX)	Function	Note
00	No. 0	The number 0-9 has corresponding functions, such as selecting music, setting the volume, setting EQ, setting cycle mode, setting channel, setting the repertoire, and sending the digital at first and then send function command.
01	No. 1	
02	No. 2	
03	No. 3	
04	No. 4	
05	No. 5	
06	No. 6	
07	No. 7	
08	No. 8	
09	No. 9	
0A	Number reset	Sent the number of Cleared
0B	Confirm choosing song	Cooperate with Numbers to achieve.
0C	Volume setting	
0D	EQ setting	
0E	Loop mode setting	
0F	Channel setting	

10	Interplay song setting	
11	Play	
12	Pause	
13	Stop	
14	Previous	
15	Previous directory	
16	Next directory	
17	SD card selection	
18	SD card selection	
19	U disk selection	
1A	FLASH selection	
1B	System sleep	
1C	Stop Playing	

Note: "selection" and "interplay" are played according to the track name, for example, the track is named "00123. Mp3", and the selected data is "0x01", "0x02" "0x03" "0x0B", and the selection is completed.