

| No. | Pin Name | Instruction |
|-----|--------------|---|
| 1 | 5V+ | Work Voltage Positive Pole |
| 2 | 5V- | Work Voltage Negative 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 |

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 | Song8 | Song7 | Song6 | Song5 | Song4 | Song3 | Song2 | Song1 |
| I/O Independent Mode 1 | 0 | 1 | 1 | Song8 | Song7 | Song6 | Song5 | Song4 | Song3 | Song2 | Song1 |
| 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.

I/O Integrated Mode 0 (Key combination playing).

Note: the song must be named for 5bit.

| IO7 | IO6 | IO5 | IO4 | IO3 | IO2 | IO1 | IO0 | Song | 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.Music control as following: |
|-------|-------|-------|-------|-------|-------|-------|-------|-----------|---|
| 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 | |

| I/O Integrated Mode 1 (Level combination playing) | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-----------|
| 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 |
| I/O Independent Mode 0 (Key independent controlling) | | | | | | | | |
| 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 |
| I/O Independent Mode 1 (Level independent controlling) | | | | | | | | |
| 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 |

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.

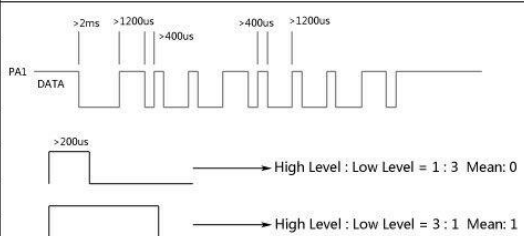
I/O0-I/O7 independently controls 8 songs.It will stop playing current song to the end after I/O0-7 release input signal(return to high);It will playing new song when get new input signal during playing and stop after end of song;It will play repeatedly if keep input;Busy pin will output valid signal(High)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

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.

| UART Mode | | | | | |
|--|--------------|-----------------|-----------|---------------|----------------|
| 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 | Check Bit (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: Relevant data in command, when length of data is 1, means there is only CMD and no data bits. | | | | | |
| Check Bit: Low 8 bits of sum of all bytes. that is, When start code and 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. | | | | | |
| 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 in current folder in order, then play by play.Directory don't contain subdirectory. | | | | | |
| Directory random (05): random play in the current folder, and directory does not contain subdirectory. | | | | | |
| Directory order play(06):Play current folder in order & stop after play.Directory not include 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. | | | | | |

| UART 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 |
| | | |
| 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 |
| | | |

| UART Communication Command | | | | | |
|--------------------------------|--------------|-------------------------------|------------------------------|--------------|---------------------------------|
| Control Command | | | Query Command | | |
| Command | Command Code | Return | Command | Command code | Return |
| Play | AA 02 00 AC | None | Query play status | AA 01 00 AB | AA 01 01, play status, SM |
| Pause | AA 03 00 AD | None | Query current online drive | AA 09 00 B3 | AA 09 01, drive, SM |
| Stop | AA 04 00 AE | None | Query current play drive | AA 0A 00 B4 | AA 0A 01, drive, SM |
| Previous | AA 05 00 AF | None | Query Number of songs | AA 0C 00 B6 | AA 0C 02S.N.H S.N.L SM |
| Next | AA 06 00 B0 | None | Query current song | AA 0D 00 B7 | AA 0D 02 S.N.H S.N.L SM |
| Volume + | AA 14 00 BE | None | Query folder directory song | AA 11 00 BB | AA 11 02 S.N.H S.N.L SM |
| Volume - | AA 15 00 BF | None | Query folder Number of songs | AA 12 00 BC | AA 12 02 S.N.H S.N.L SM |
| 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 |

| One_line Single Bus Mode | | |
|--------------------------|------------------------|--|
| Command(HEX) | Function | Note |
| 0x00 | 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. |
| 0x01 | No. 1 | |
| 0x02 | No. 2 | |
| 0x03 | No. 3 | |
| 0x04 | No. 4 | |
| 0x05 | No. 5 | |
| 0x06 | No. 6 | |
| 0x07 | No. 7 | |
| 0x08 | No. 8 | |
| 0x09 | No. 9 | |
| 0x0A | Number reset | Sent the number of Cleared |
| 0x0B | Confirm choosing song | Cooperate with Numbers to achieve. |
| 0x0C | Volume setting | |
| 0x0D | EQ setting | |
| 0x0E | Loop mode setting | |
| 0x0F | Channel setting | |
| 0x10 | Interplay song setting | 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. |
| 0x11 | Play | |
| 0x12 | Pause | |
| 0x13 | Stop | |
| 0x14 | Previous | |
| 0x15 | Previous directory |  |
| 0x16 | Next directory | |
| 0x17 | SD card selection | |
| 0x18 | SD card selection | |
| 0x19 | U disk selection | |
| 0x1A | FLASH selection | |
| 0x1B | System sleep | |
| 0x1C | Stop Playing | |

