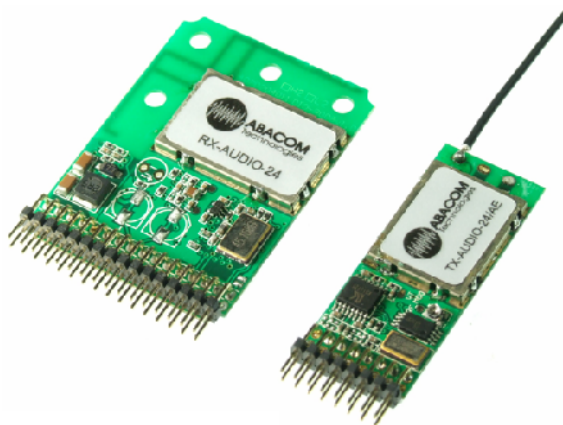




RX-AUDIO-24 2.4GHz Wireless Digital Audio Receiver Module

TX-AUDIO-24/AE 2.4GHz Wireless Digital Audio Transmitter

The RX-AUDIO-24/AE and TX-AUDIO-24 RF wireless digital audio receiver and transmitter modules provide designers with a fast track to producing high quality wireless digital audio applications. Whether the application be for home theatre systems, wireless speaker systems, wireless headphones, wireless microphones or wireless MP3 player applications, these modules deliver top quality characteristics.



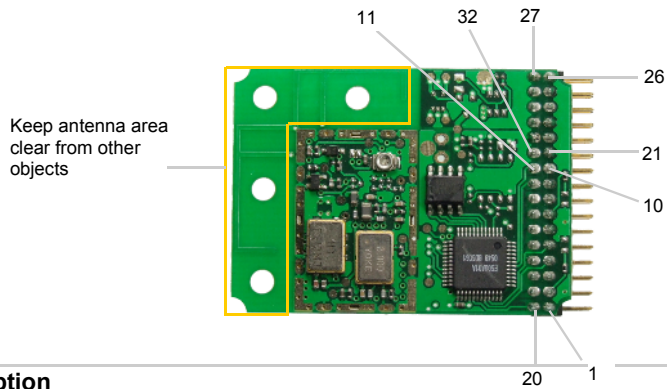
Features

- No compression produces highest quality audio
- Digital audio with 44.1KHz sampling rate
- 16-bit resolution
- Minimal 0.5ms delay
- POP noise prevention at power ON
- Mute function in poor receiving conditions
- LOS range up to 150ft
- FSK digital modulation
- Line level inputs and outputs
- **NEW FEATURE!** Headphone amp output
- 8 selectable operating channels
- 1/4 wave wire whip transmit antenna (1.16in length)
- Receiver antenna diversity for best signal reception
- Low power for mobile applications
- 2mm pin headers
- Evaluation kit available
- Small size: 1.6in x 0.6in x 0.25in (TX)
1.26in X 1.74in x 0.25in (RX)

Typical Applications

- Home theater rear speakers
- PA systems
- Wireless headphones
- MP3 players, CD and DVD players
- Wireless speaker systems
- USB and PC applications

Receiver Pin Configuration

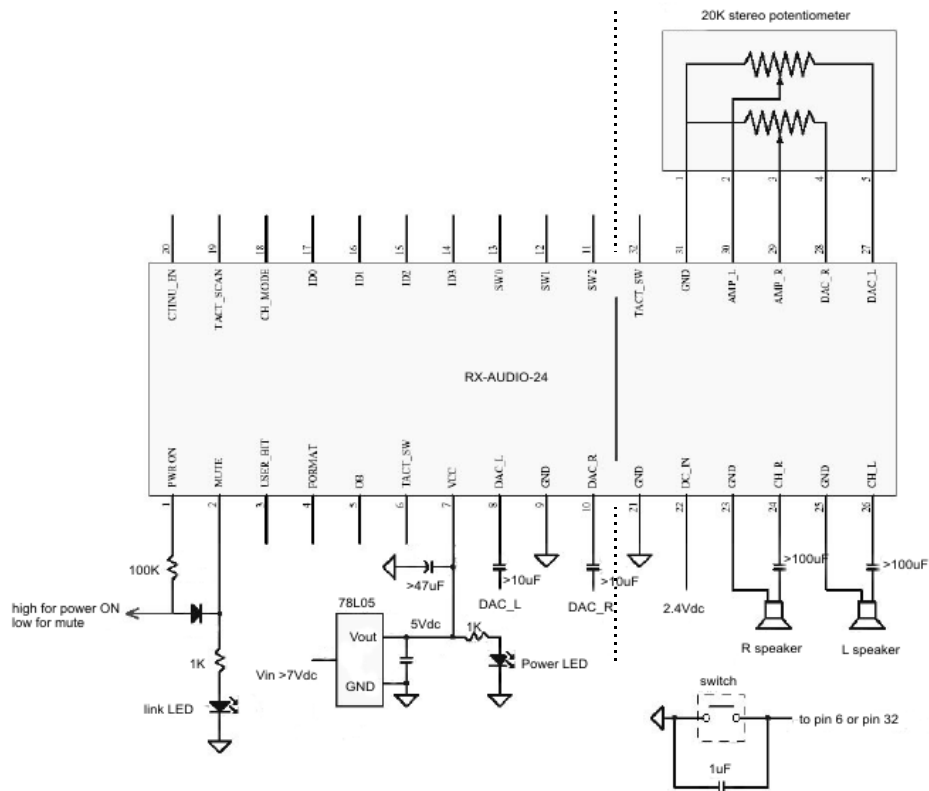


Pin #	Pin Name	Pin Description
1	PWR_ON	Transitions HIGH (2.7V) 1-2 seconds after power supply is applied to the module . May be used to turn on the audio power amplifier to prevent 'pop' noise when the RX module is powered ON
2	MUTE	Logic level LOW during poor RF signal reception. May be used for other functions with simple external circuits, such as receiving indicator, extra noise reduction when transmitter is OFF etc..
3	USER_BIT	Data output corresponding to the data input at the transmitter. (5Kbps max.)
4	FORMAT	Pull up for scrambling with "01" pattern. Pull down for scrambling with random pattern. (internally pulled high)
5	OB	Pull down to enable out-band channel for testing purposes (internally pulled high)
6	TACT_SW	Pulse low to scan channel in TACT mode (internally pulled high) (see table for channel setting mode)
7	VCC	5Vdc power supply input
8	DAC_L	L channel audio output direct from DAC. A series DC blocking capacitor (>10uF) should be added, unless the load impedance is >10Kohm
9	GND	Ground
10	DAC_R	L channel audio output direct from DAC. A series DC blocking capacitor (>10uF) should be added, unless the load impedance is >10Kohm
11	SW2	Pull low for DIP mode channel selection (internally pulled high)
12	SW1	
13	SW0	
14	ID3	Pull low for ID selection (internally pulled high)
15	ID2	
16	ID1	
17	ID0	
18	CH_MODE	See channel mode setting table. Pull high for TACT mode and low for DIP mode (internally pulled high)
19	TACT_SCAN	See channel mode setting table. Pull high to enable scanning to next appropriate channel (internally pulled high)
20	CTINU	See channel mode setting table for details. Pull high to enable automatic channel-scan under poor receiving conditions (internally pulled high)
21	GND	Ground
22	DC_IN	
23	GND	Ground
24	CH_R	R-channel audio out direct from headphone driver. A DC blocking capacitor (>100uF) should be added
25	GND	Ground
26	CH_L	L-channel audio out direct from headphone driver. A DC blocking capacitor (>100uF) should be added
27	DAC_L	Same as pin 8
28	DAC_R	Same as pin 10
29	AMP_R	Headphone driver R-channel input
30	AMP_L	Headphone driver L-channel input
31	GND	Ground
32	TACT_SW	Same as pin 6

Channel Mode Setting

Channel Mode	CH_MODE (Pin18)	TACT_MODE (pin 19)	CTINU (pin 20)	Function
DIP	GND	X	X	Set SW0, SW1 and SW2 to change channel
TACT	X	GND	X	Switch channel by channel with each low pulse applied to TACT_SW (pin 6)
TACT SCAN	X	X	GND	Automatically search channel when a low pulse is applied to TACT_SW (pin 6)
AUTO SCAN	X	X	X	Automatically search channels under poor receiving condition

X = floating

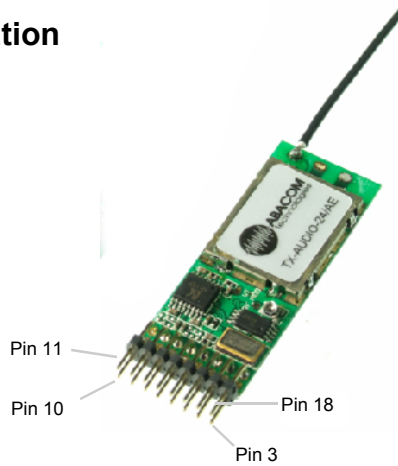


Application Information

If designing the receiver module into wireless speakers or headphones, pay attention to the following:

1. Keep the antenna clear of metal objects
2. Avoid magnetic interference by keeping the module at least 1 inch away from the speaker
3. The receiver modules power supply must be separate from the amplifier's power supply
4. Keeps cables and other circuits away from the antenna (up to 1 inch away if possible)

Transmitter Pin Configuration



Pin #	Pin Name	Pin Description
3	USER_BIT	Input pin for application specific data stream (5Kbps max.). This data will be output at the corresponding USER_BIT pin at the receiver(s)
4	FORMAT	Internal pull-up. When pulled down (to ground), digitized audio is scrambled
5	OB	Internal pull-up. When low , out of band channels are enabled. For testing purposes ONLY
6	TACT SW	Internal pull-up. Pulsing low changes transmit channel if in TACT MODE (ie pin 18 HIGH)
7	Vcc	Supply voltage. 3.3Vdc \pm 0.1Vdc
8	ADC_L	Left channel audio input (>10Kohm. , 2Vpp max.). A dc blocking capacitor >1uF should be added
9	GND	Ground
10	ADC_R	Left channel audio input (>10Kohm. , 2Vpp max.). A dc blocking capacitor >1uF should be added
11	SW2	Internal pull-up. When taken low or left open, if in DIP mode, operating channel is selected (see table for channel selections according to SW2,SW1,SW0 positions). It is assumed that these pins may be connected to an external DIP switch. Up to eight different operating channels are possible
12	SW1	
13	SW0	
14	ID3	Internal pull-up. When taken low or left open sets the ID. Only receivers with the same ID will output the received audio. Up to 16 ID combinations are possible.
15	ID2	
16	ID1	
17	ID0	
18	CH_MODE	Internal pull-up. Used for channel selection mode (see table below for channel selection settings).

Channel Mode	CH_MODE (pin 18) State	Functional Description
DIP Mode	Pulled LOW	Operating channel is selected according to the binary states of SW0, SW1 and SW2. SW2 is the most significant bit of the binary combination. All open selects the lowest frequency channel. All pulled low selects the highest frequency channel
TACT Mode	Open (pulled High)	When TACT_SW (pin 6) is pulsed low, the next operating channel is selected

Specifications

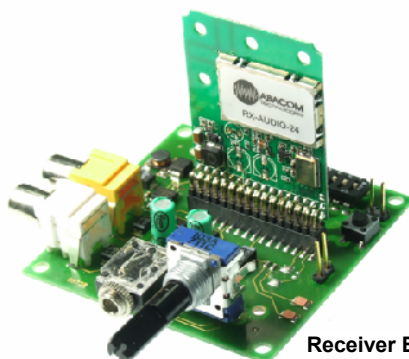
RX-AUDIO-24		TX-AUDIO-24/AE	
Supply Voltage	5+/- 0.1Vdc	Supply Voltage	3.3Vdc ±0.1Vdc
Current Consumption	65mA (typ.)	Current Consumption	68mA (typ.)
Operating Temperature	-10-+60 deg. C	Operating Temperature	-10-+60 deg. C
Frequency Range	2400-2483.5MHz	Frequency Range	2400-2483.5MHz
Modulation	FSK	Modulation	FSK
Channels	8	Channels	8
Channel Spacing	9MHz	Channel Spacing	9MHz
Frequency Stability	+/- 100KHz	Frequency Stability	+/- 100KHz
Sensitivity	-85dBm (typ.)	Tx Power	+10dBm ERP
Output Impedance	<1K ohm	Input Impedance	>10K ohm
Output Level	3.4Vpp (max)	Input Level	2Vpp (max)
AF Response	20Hz - 20KHz	AF response	20Hz - 20KHz
Dynamic Range	92dB (typical)	Dynamic Range	90dB (typical)
Separation	80dB (typical)	Separation	70dB (typical)
S/N Ratio	87dB (typical)	S/N Ratio	90dB (typical)
THD	0.1% (typical)	THD	0.1% (typical)

Mating Connectors (2mm receptacles)

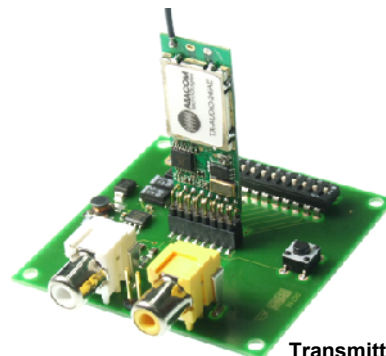
- For the receiver: 2 x Molex type 79107-7007, www.digi-key.com part # WM18679 (top entry, through-hole type)
- For the transmitter: 1x ...same part as above...
- Surface mount top entry or side entry types are also available

Evaluation Kit

The TX-AUDIO-24/AE and RX-AUDIO-24 modules are designed for simple integration into a design application. To further simplify the process, we offer an evaluation set which is supplied complete with modules. Please visit our website for further details.



Receiver Eval Board



Transmitter Eval Board