

AAT1 User Guide

Analog Audio Trigger



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The Bobwire AAT1 is an ultra-sensitive analog audio detection device with 12V trigger outputs and an expansion relay. The instant audio is detected at the RCA inputs, the 12V trigger outputs will be energized and the expansion relay will close. The AAT1 will wait anywhere from 1 second to 10 minutes (reset delay) after the audio stops before turning off the 12V triggers and opening the expansion relay. This reset wait time is determined by the setting of the Reset Delay adjustment knob. How loud the audio signal must be to trigger the AAT1 is determined by the setting of the Audio Trigger Sensitivity knob.

A common use for the AAT1 would be to turn on a power amplifier equipped with a 12V trigger Input. Most stand-alone amplifiers have 12V trigger inputs. Please note that surround sound receivers (AVRs) do not have 12V inputs and therefore can not be controlled by the AAT1's 12V trigger outputs. The copper circuit board traces and gold plated audio connections ensure the purest audio signal path. The ultra-sensitive audio detection circuit is 100% analog & remains out of the signal path at all times.

Audio Trigger Sensitivity

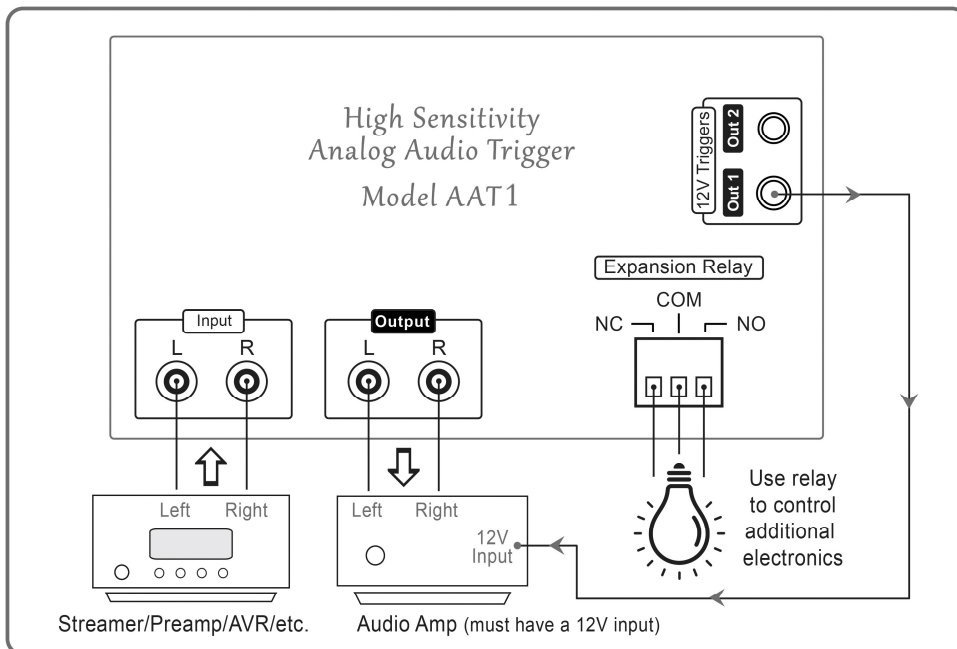
The AAT1 has an extremely sensitive audio detection circuit, even a tiny amount of inaudible noise may cause the device to be activated. The most sensitive setting (1mV) will sometimes not be the best choice. Experiment with the Audio Trigger Sensitivity and Reset Delay time to determine the best settings for your particular audio system & application.

If the Audio Trigger Sensitivity is already set to 1mV and you need the AAT1 to activate at even lower volume levels, the Audio Output cut switch can be used. The Audio Output cut switch will reduce the RCA outputs by 10dB. This has the effect of reducing the volume level heard at the speakers. If you are using a mono audio signal with only a single RCA connection, use a "Y" cable to split the mono signal into both the Left & Right Inputs for higher audio trigger sensitivity.

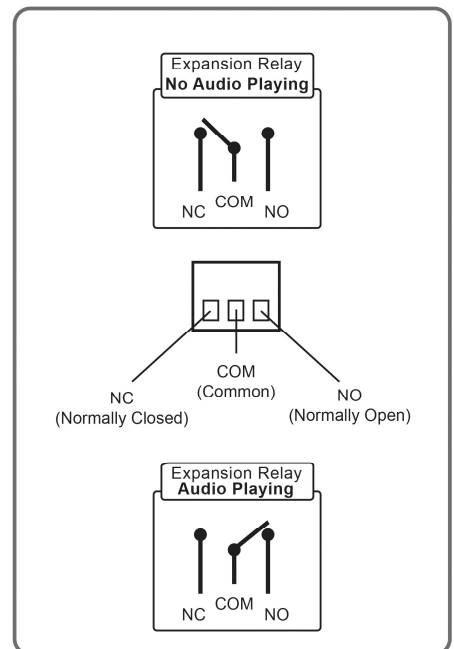
Expansion Relay

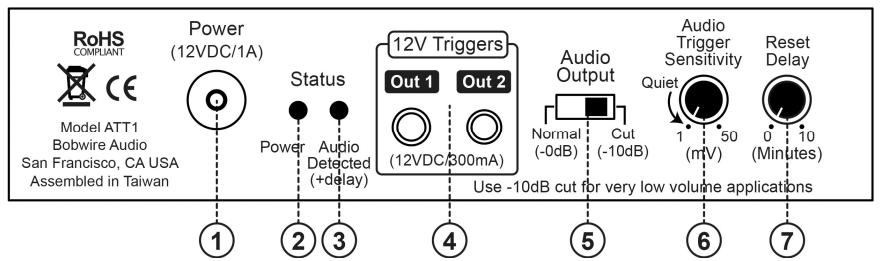
The SPDT (single pole dual throw) relay can be used to control additional equipment that you wish to be activated when the music/audio starts. Additional equipment could include projection screens, TV lifts, lights, AV switchers or device power. When the AAT1 is activated, the NO (normally open) and COM (common) contacts are connected. When the AAT1 is deactivated, the NC (normally closed) and COM (common) contacts are connected. The relay contacts are gold plated and suitable to carry audio signals or power. The expansion relay is a "dry contact" which means no power is supplied at the relay outputs (you must supply the appropriate power and the expansion relay will switch that power on/off). See the specifications section for the power ratings of the expansion relay.

Wiring Diagram Example :



Expansion Relay :





1. Power Supply Connection : Connect the included 12V power supply to this jack.

2. Power Indicator : This LED indicates when the AAT1 has power.

3. Audio Detected Indicator: As soon as audio is detected, this LED will illuminate. This indicator will turn off after the audio has stopped and the Reset Delay time has expired. Whenever this LED is illuminated, the 12V trigger Outputs will be activated and the expansion relay will be closed. When this LED turns off, the 12V triggers will turn off and the expansion relay will open.

4. 12V Trigger Outputs : As soon as audio is detected, both 12V triggers will be energized and 12VDC will be present at both jacks. The 12V triggers will turn off after the audio has stopped and the Reset Delay time has expired. The two outputs are in parallel and have a combined output of 300mA. If the current draw exceeds 300mA the outputs will turn off until the current drops below 300mA. Use the 12V trigger outputs to turn on audio equipment like amplifiers equipped with a 12V trigger Input. These outputs can also be used to turn on/off heavy duty relays for power control of any electronics. These are 3.5mm “mono” (2 conductor) jacks, a stereo “AUX” cable will not work.

5. Audio Output Cut Switch : The Audio Output cut switch will reduce the RCA output volume by 10dB. This has the effect of reducing the volume level that is heard at the speakers. This feature can be helpful if the Audio Trigger Sensitivity is already set to 1mV and even lower listening levels are desired.

6. Audio Trigger Sensitivity : The sensitivity adjustment knob determines how loud the audio signal present at the RCA inputs need to be before activating the AAT1 (trigger threshold). The range is 1mV (very quiet) to 50mV (louder). The AAT1 has an extremely sensitive audio detection circuit, even a tiny amount of inaudible noise may cause the device to activate, therefore the most sensitive setting(1mV) will sometimes not be your best choice. Experiment to determine the best setting.

7. Reset Delay Time : The Reset Delay knob determines how long the device waits after the audio has stopped before turning off the 12V triggers and opening the expansion relay. If the Reset Delay Time is set too short, the device may turn off between tracks or during very quiet parts of a song/movie. When using the AAT1 to turn on/off amplifiers, you typically want the delay set to the long time (closer to 10 minutes). Experiment to determine the best setting.

Troubleshooting

AAT1 Not Detecting Audio While Music is Playing

- Lower the Audio Sensitivity setting (counter-clockwise to 1mV)
- Ensure that audio is being supplied to the RCA inputs
- Turn up the volume on the audio source
- If operating in Mono, use “Y” cable to supply both L&R inputs

AAT1 Activates with No Music Playing

- Increase the Audio sensitivity setting (clockwise towards 50mV)
- Listen to the audio signal for excessive noise like hum or hiss

AAT1 Deactivates While Music is Still Playing

- Lower the Audio Sensitivity setting (counter-clockwise to 1mV)
- Increase the Reset Delay Time setting (clockwise to 10 minutes.)
- If operating in Mono, use a “Y” cable to supply both L&R inputs

12V Trigger Outputs not Working

- Verify 12VDC is present on the trigger cable
- Check polarity of the trigger cable, the tip should be positive
- Verify the 12V cable is a mono 2-conductor cable (not an AUX cable)

Specifications

Frequency Response :	1Hz to 100kHz (+/-0.1dB)	Audio Trigger Sensitivity :	1mV to 50mV (audio signal)
Total Harmonic Distortion (THD) :	less than 0.001%	Audio Trigger Detection Frequency :	20Hz to 10kHz
Channel Separation (crosstalk) :	more than 100dB	Power Supply Output :	12VDC 1A (center pin is positive)
Signal to Noise Ratio :	more than 120dB	Power Supply Input :	100-250 VAC 50/60Hz
12V Trigger Output :	12VDC (300mA 1&2 combined)	Power Supply Connector Size :	5.5mm X 2.1mm
Reset Delay Time :	1 second to 10 minutes	Power Draw (self consumption) :	1.0 Watts (0.4 watts idle)
Expansion Relay Switch Rating :	4A (DC), 2A (AC) max while switching	Weight (device only/boxed) :	1.4lb (0.6kg) / 2.2lb (1.0kg)
Expansion Relay Current Rating :	6A max carrying capacity	Dimensions (without cables) :	7.4"x5.0"x1.4" (188x127x36mm)
Expansion Relay Info :	The relay has 2 internal contacts to double the capacity. For relay longevity, current while switching should be limited to 4A(DC) & 2A(AC).		
Mounting Options :	Use the built in mounting "ears" with screws or zip ties to mount to a wall or equipment rack or stick on rubber pads for tabletop use.		
Included Accessories :	AAT1 Device, power supply, 3.5mm "mono" 12V trigger cable, tabletop rubber pads.		