ZinAmp
Beautiful sound, for people who love music

Application & Purpose:

A mute-delay, low pass filter and amplifier that detects DC offset in the speaker output but does not confuse low frequency audio signals for DC.

A genuine DC offset will pass through the low pass filter and switch on a transistor to emit a 45v (approx) DC voltage. This is used to trip an audio relay which cuts the signal to the loudspeakers.
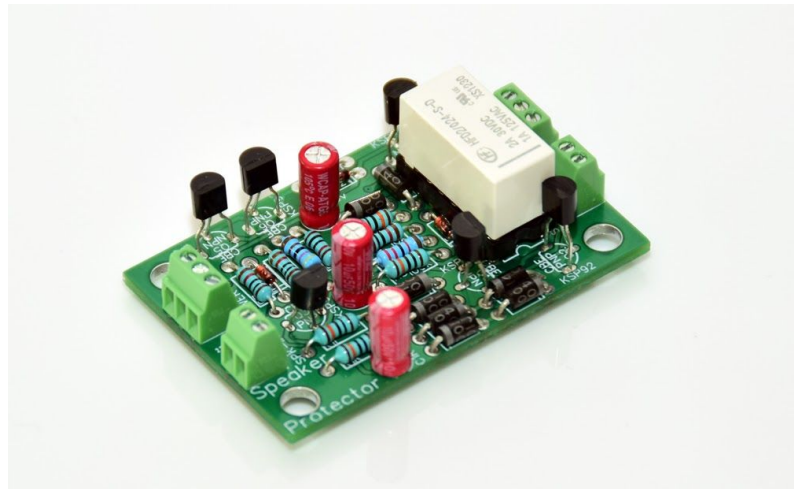
Specification:

PCB Dimensions	57mm x 33mm x 1.6mm
Supply Voltage	Min -/+35v Max -/+56v
Signal Inputs	Two - Speaker - left - Speaker - right
Signal Outputs	Loudspeaker Signal
Trigger Response Time	50-60 milliseconds

Details:

A mute-delay controller that mutes the loudspeakers for approx 1.5 seconds after power-up, so that speakers are protected from any thump or snap. This module then protects the speakers from any DC offset detected after power-up.

A low pass filter is used to filter out genuine DC offset in the speaker output from low frequency audio signals. A genuine DC offset results in a relay on the module being energised; this cuts the signal output to the loudspeakers. Trigger response time is typically 50-60mS.

Connections:
- Power In - from Power Amp Supply: Min -/+35v Max -/+56v
    - Connect the HUB pin to the earth-hub or star-earth point in your installation
- Power Out - pass-through of the DC supply to the headphone adaptor.
- Speaker In - L & R
- Speakers Out - L & R

Relays:

A single relay is fitted to the module and can be replaced by pulling it from it's DIP/DIL socket and reinserting a replacement. Relays are a tried, tested and very effective way of muting loudspeakers, however, they do occasionally fail, but can be easily replaced. Do not solder a relay directly to the board - instead use a 16 pin DIP/DIL socket.

Earths:

The ground net of this module is connected to the Earth Hub or star point via the POWER-IN terminal. This net passes through the module out to the headphone adapter via the POWER-OUT terminal. POWER-OUT is used to power the headphone adaptor.

Blank PCB:
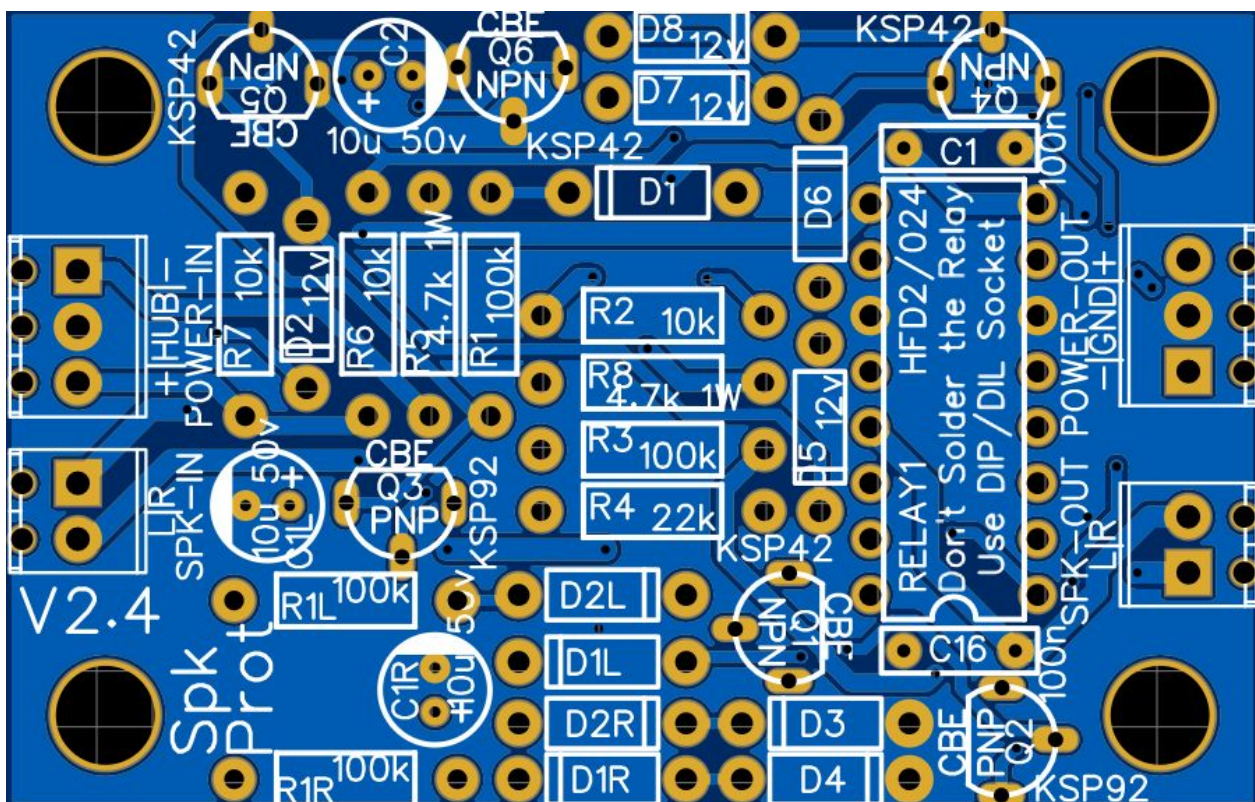
Parts List:

CONNECTORS: Both blank and ready-built PCB requires connectors be purchased and soldered on by the constructor. This is to give the constructor a choice of how they wire their own particular installation. Terminal block connectors are indicated in the list below in blue and can be swapped for equivalent 2.54mm pitch connectors e.g. Molex KK254 headers, which are provided to the constructor in kits with ready-made wiring.

Designator	Value/Spec	Qty	Manufacturer	Manufacturer Part	Supplier Part
C1,C16	100n	2	Epcos	B32529C0104J000	334-221
C2,C1L,C1R	10u 50v	3	Nichicon	UST1H100MDD	501-9267

D2R,D3,D2L, D6,D1,D1L,D 1R,D4	1N4148W	8	Vishay	1N4001-E3/54	628-8931
D8,D7,D2,D5	12v	4	On Semi	BZX79-C12,113	544-4477
POWER-IN,PO WER-OUT	3 Pole Terminal (self-wire only)	2	RS-PRO	790-1092	790-1092
Q3,Q2,Q6	KSP92TA	3	On Semi	KSP92TA	806-4627
Q4,Q1,Q5	KSP42TA	3	On Semi	KSP42TA	739-0505
R1L,R1,R1R,R3	100k	1	TE Connectivity	LR1F100K	125-1168
R5, R8	4.7k 1W	2	Vishay	PR01000104701JA10 0	683-5512
R6,R7,R2	10k	3	TE Connectivity	LR1F10K	125-1164
R4	22k	1	TE Connectivity	LR1F22K	125-1167
Relay1	HFD2/024	1	Hongfa	HFD2/024-S-D	176-2943
Relay1	16 Pin DIP Socket	1	Winslow	W30516TRC	813-137
SPK-OUT,SPK-I N	2 Pole Terminal (self-wire only)	2	RS-PRO	790-1098	790-1098

Parts available from RS Online. Also try Farnell, Mouser and other online suppliers.

Parts from different manufacturers can be substituted where spec is sufficient

Supplier trading names may differ by country.