

FEATURES

- Use of the famous ASAHI KASEI 24-Bit DSP with built in 20-Bit AD/DA stereo converters
- A combination of low costs and highest performance "DIGITAL AUDIO EFFECTS" are put into practice
- 20 Bit Delta Sigma 64x Oversampling AD converter (inside DSP)
- 20 Bit Delta Sigma 128x Oversampling DA converter (inside DSP)
- 64x Oversampling ADC Digital Filter (inside DSP)
- 128x Oversampling DAC Digital Filter (inside DSP)
- Sampling Rate 31.25 KHZ
- Use of a 1MB SRAM Chip for high quality stereo Reverb and Delay (Echo) sounds
- Only a single 5VDC power supply necessary
- Audio signal "Overshooting" indicator available (CLIP-LED, only a LED is necessary)
- Effect ON / OFF circuit on-board (Audio output muting), executable with a single switch to GND
- Automatic audio muting activation during program changes and during "First Power ON" process
- No pre-emphasis and de-emphasis OP-Amp circuits are necessary
- 3 wire serial interface available for easy connection of a 2 digits 7 segment numeric display (ACE 32B only)
- Two basic applications are available: (selectable with on-board Jumper, ACE32 B only)
 - #1 - Effect program selection by 5-Bit "Binary or Gray" coded rotary switch models (ACE 32A and ACE 32B);
 - #2 - Effect program selection by "Up and Down Keys", preset number is stored in EE-PROM; (ACE 32B only)
- Pin and board size compatibility to ACE16 and ACE99 effect boards;
- Real 32 Stereo - Effects available, divided into 5 combination and 27 single effect sounds

APPLICATIONS

- Guitar and Keyboard Amplifiers / Combos
- Audio mixing consoles / Powered audio mixing consoles
- Karaoke systems
- Stand-alone Stereo Effect units for Studio and PA usage
- Mono to Stereo converters for surround effect enlarging

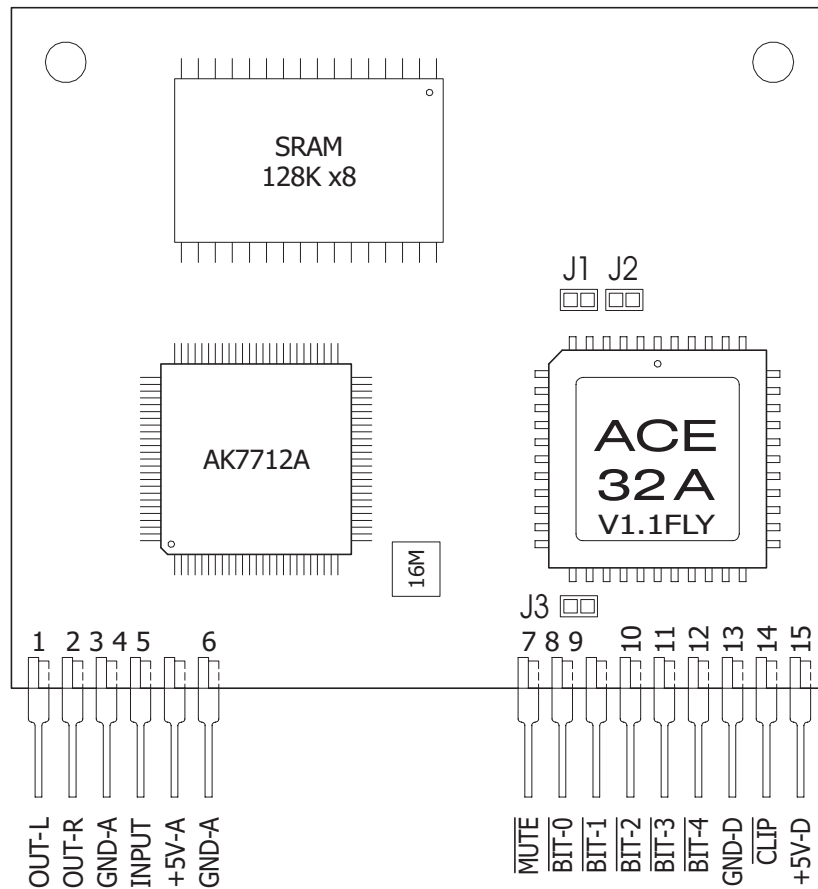
TECHNICAL DATA

ADC / DAC resolution : 20 Bit
 DSP arithmetic : 24 / 34 Bit
 S/N (A-filter) : 95dB
 Dynamic range : 97dB
 Frequency passband : 70 - 16000HZ (-3dB)
 Max. input voltage : 4.0 Vp-p
 Input impedance : 200 Kohm
 Max. output voltage : 3.2 Vp-p, Stereo single ended mode
 Min. output load res. : 5 Kohm
 Current consumption : 133 mA (without Clip-Led and program indicator)
 Operating temp. range : Min. -40°C, max. +85°C

EFFECT CHART

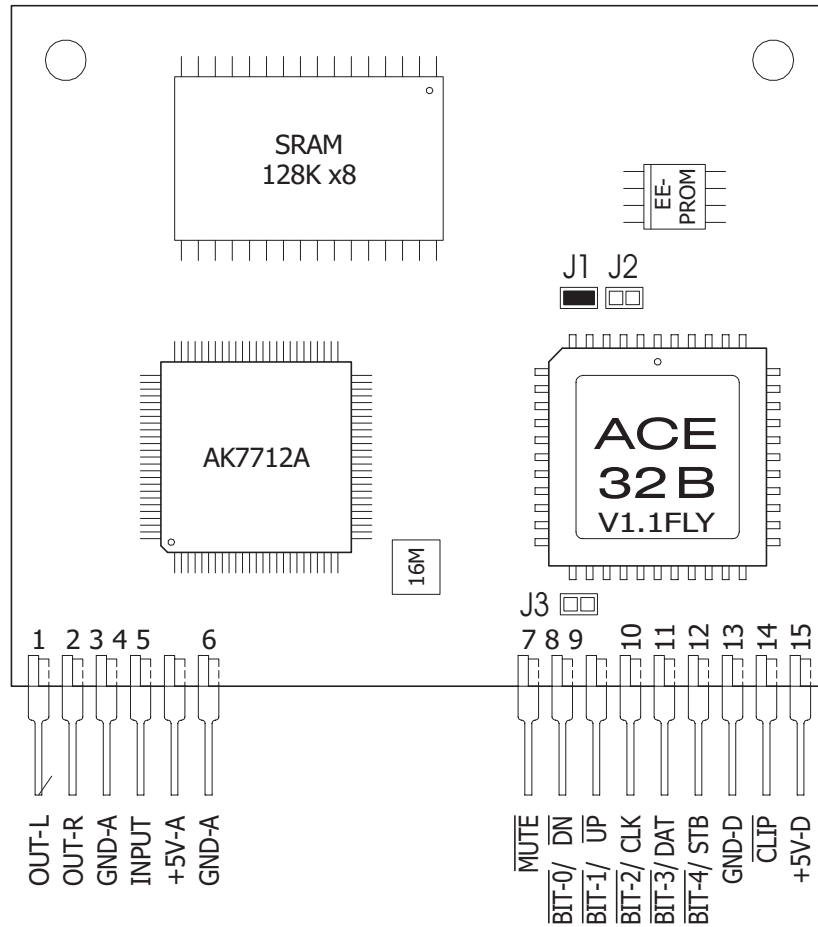
01	Reverb Hall	6.0 sec	09	Ambient	1.6 sec	17	Voice doubler I	60 ms	25	Chorus+Echo II	300 ms
02	Reverb Hall	4.5 sec	10	Echo+Reverb	.15/1.6 sec	18	Voice doubler II	120 ms	26	Flanger	slow
03	Reverb Hall	3.0 sec	11	Echo 50% F.B.	100 ms	19	Chorus	slow	27	Flanger	medium
04	Reverb Hall	1.6 sec	12	Echo 50% F.B.	200 ms	20	Chorus	medium	28	Flanger	fast
05	Reverb Room	1.6 sec	13	Echo 50% F.B.	300 ms	21	Chorus	fast	29	Gated Reverb I	125 ms
06	Reverb Room	1.0 sec	14	Echo 50% F.B.	400 ms	22	Chorus+Reverb I	2.0 sec	30	Gated Reverb II	200 ms
07	Reverb Plate	3.0 sec	15	Echo 50% F.B.	500 ms	23	Chorus+Reverb II	4.0 sec	31	Reverse Reverb I	150 ms
08	Reverb Plate	1.6 sec	16	Echo 50% F.B.	800 ms	24	Chorus+Echo I	150 ms	32	Reverse Reverb II	250 ms

ACE 32A INPUT / OUTPUT Terminals Description



PIN#	GENERAL - FUNCTION	ALTERNATE - FUNCTION
1	Audio left channel output, single ended mode	---
2	Audio right channel output, single ended mode	---
3	Audio input / output ground reference	---
4	Audio signal input, single ended mode	---
5	+5VDC power supply for analog section	---
6	Power supply return (0V), analog section	---
7	Audio output 'On/Off' control; <i>Low = Output Off</i>	---
8	Program selection input - Binary/Gray, active low	---
9	Program selection input - Binary/Gray, active low	---
10	Program selection input - Binary/Gray, active low	---
11	Program selection input - Binary/Gray, active low	---
12	Program selection input - Binary/Gray, active low	---
13	Power supply return (0V), digital section	---
14	Audio level 'Overshoot' indicator output, active low	---
15	+5VDC power supply for digital section	---

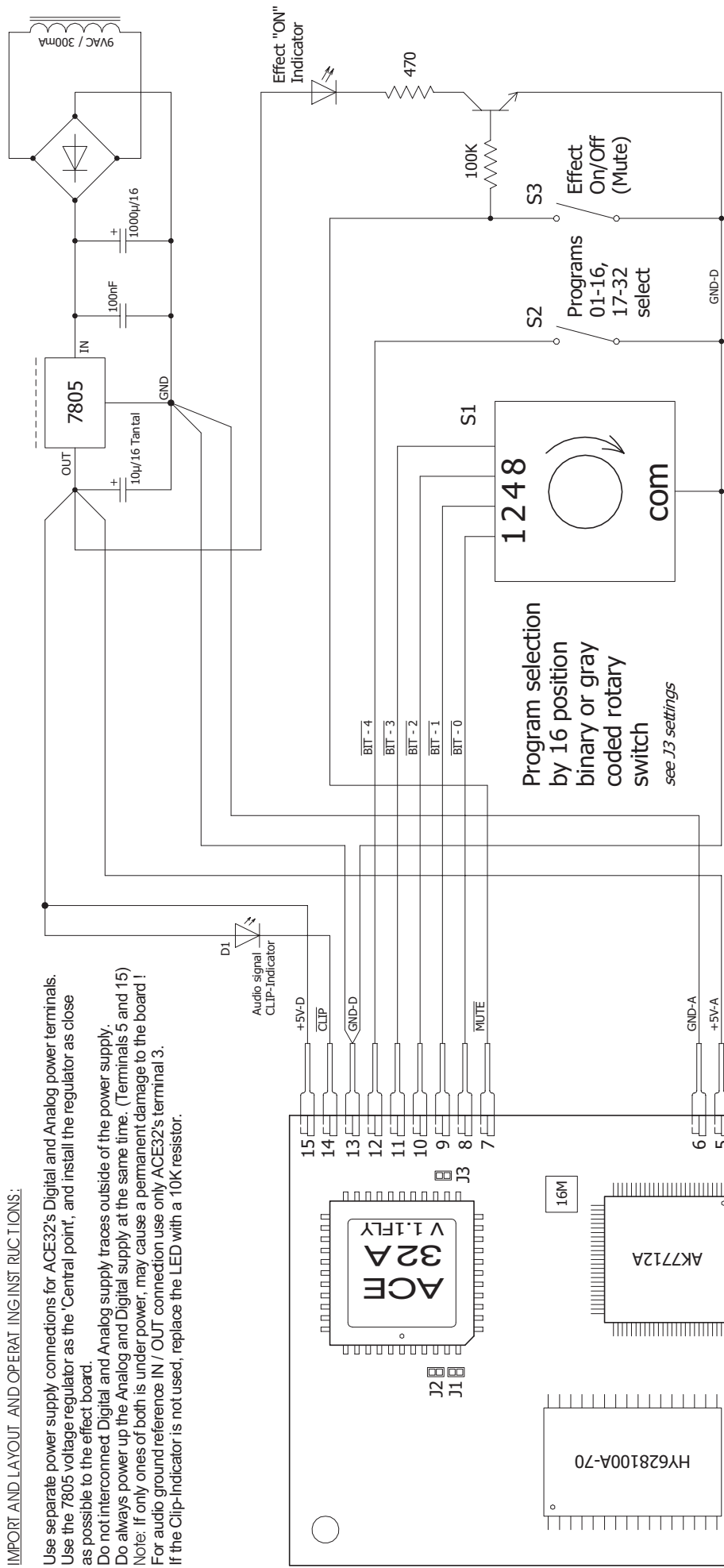
ACE 32B INPUT / OUTPUT Terminals Description



PIN#	GENERAL - FUNCTION	ALTERNATE - FUNCTION
1	Audio left channel output, single ended mode	---
2	Audio right channel output, single ended mode	---
3	Audio input / output ground reference	---
4	Audio signal input, single ended mode	---
5	+5VDC power supply for analog section	---
6	Power supply return (0V), analog section	---
7	Audio output 'On/Off' control; <i>Low = Output Off</i>	---
8	Effect program down count input, active low	Program selection input - Binary/Gray, active low
9	Effect program up count input, active low	Program selection input - Binary/Gray, active low
10	Serial interface 'Clock' signal output	Program selection input - Binary/Gray, active low
11	Serial interface 'Data' output	Program selection input - Binary/Gray, active low
12	Serial interface 'Strobe' signal output	Program selection input - Binary/Gray, active low
13	Power supply return (0V), digital section	---
14	Audio level 'Overshoot' indicator output, active low	---
15	+5VDC power supply for digital section	---

IMPORT AND LAYOUT AND OPERATING INSTRUCTIONS:

- Use separate power supply connections for ACE32's Digital and Analog power terminals.
- Use the 7805 voltage regulator as the 'Central point', and install the regulator as close as possible to the effect board.
- Do not interconnect Digital and Analog supply traces outside of the power supply.
- Do always power up the Analog and Digital supply at the same time. (Terminals 5 and 15)
- Note: If only ones of both is under power, may cause a permanent damage to the board!
- For audio ground reference IN / OUT connection use only ACE32's terminal 3.
- If the Clip-Indicator is not used, replace the LED with a 10K resistor.



Program #1 = 11111, Program #32 = 00000;

S2 and S3 must be push-push switch types. (push-lock, push-unlock)

JUMPER SETUP:

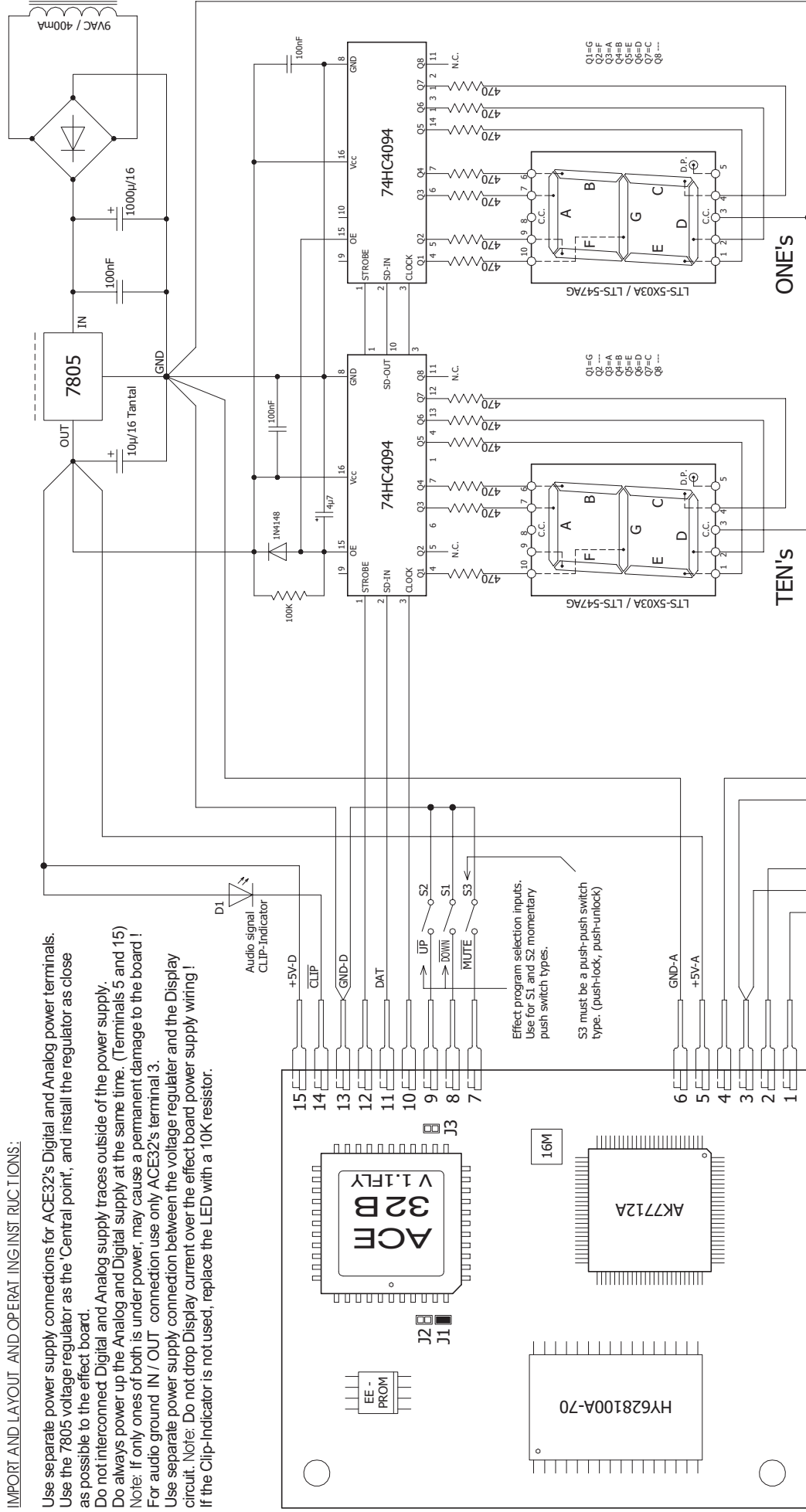
J1	OPEN
J2	NOT USED
J3	OPEN=BINARY CLOSED=GRAY

Please note:
Jumper must be set before board power up!
After power on, a post Jumper setting will cause an incorrect function to the effect board.

Audio signal In / Out
Further details see pages 6, 7, 8;

IMPORT AND LAYOUT AND OPERATING INSTRUCTIONS:

- Use separate power supply connections for ACE32's Digital and Analog power terminals.
- Use the 7805 voltage regulator as the 'Central point', and install the regulator as close as possible to the effect board.
- Do not interconnect Digital and Analog supply traces outside of the power supply.
- Do always power up the Analog and Digital supply at the same time. (Terminals 5 and 15)
Note: If only ones of both is under power, may cause a permanent damage to the board!
- For audio ground IN / OUT connection use only ACE32's terminal 3.
- Use separate power supply connection between the voltage regulator and the Display circuit. Note: Do not drop Display current over the effect board power supply wiring!
- If the Clip-Indicator is not used, replace the LED with a 10K resistor.



JUMPER SETUP:

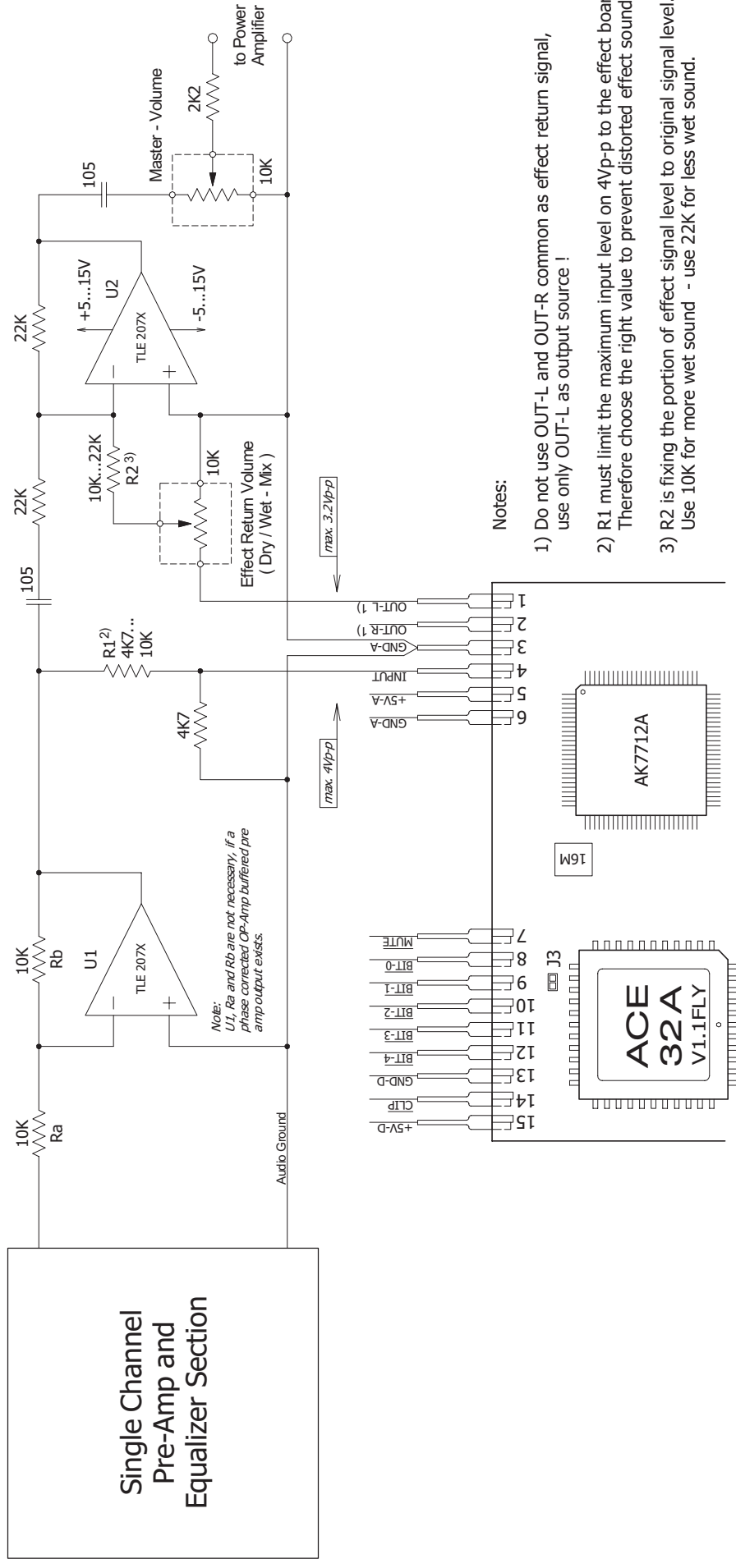
J1	CLOSED
J2	NOT USED
J3	NOT USED

Please note:
Jumper must be set before board power up!
After power on, a post Jumper setting will cause an incorrect function to the effect board.

Audio signal In / Out
Further details see pages 6, 7, 8;

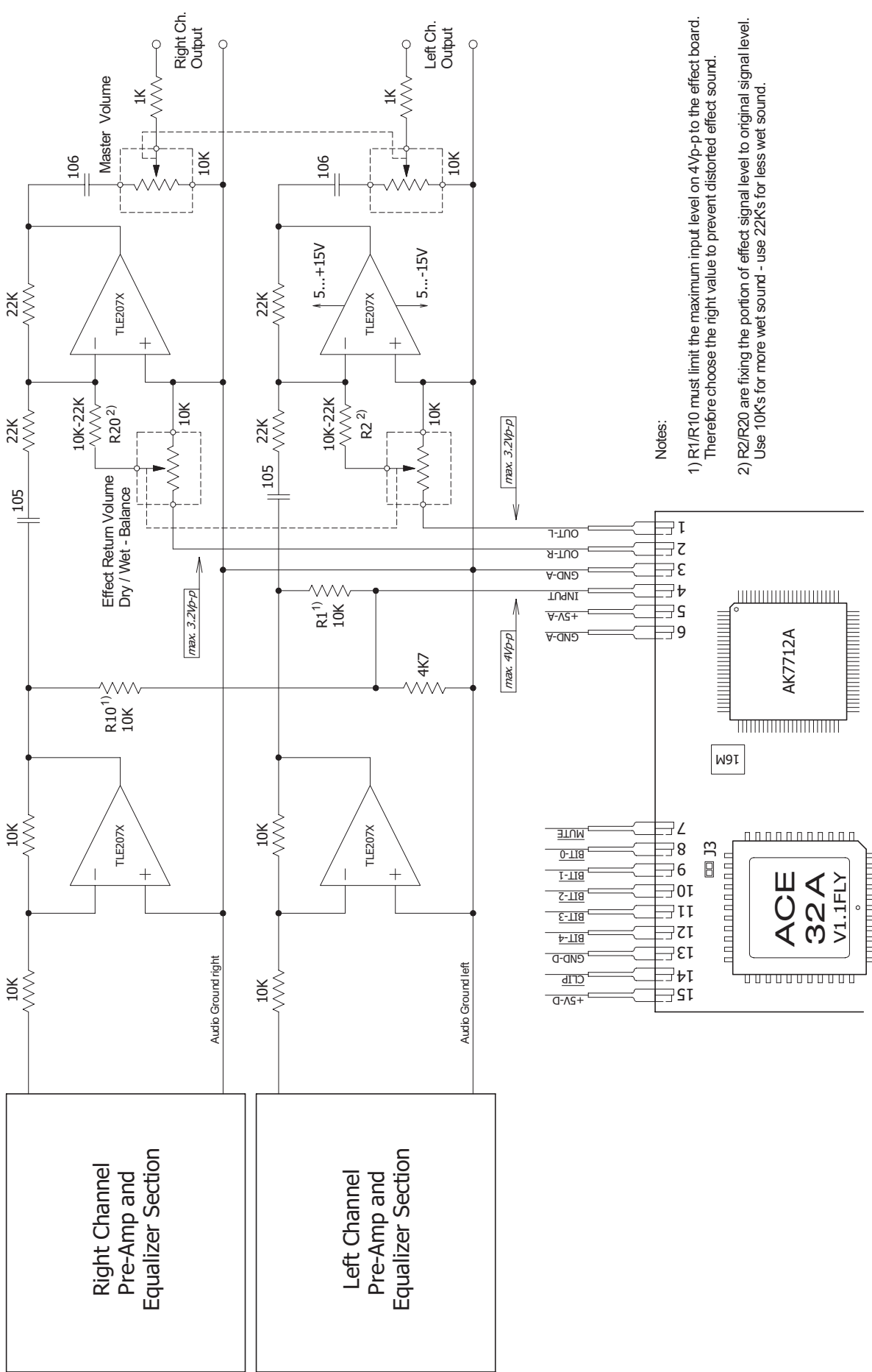
The above 2 digits numeric display indicates the selected preset with numbers from 1 - 32. If 'Mute' is active, the current displayed preset number is flashing. The flashing frequency is set to 0.5 Hz.

Audio IN / OUT Application Example #1 - Mono Effect (FX) Return, no Effect Send Bus Recommended for Guitar - / Keyboard combo's



Audio IN / OUT Application Example #2 - Stereo FX Send and Return Configuration, no FX Send Bus

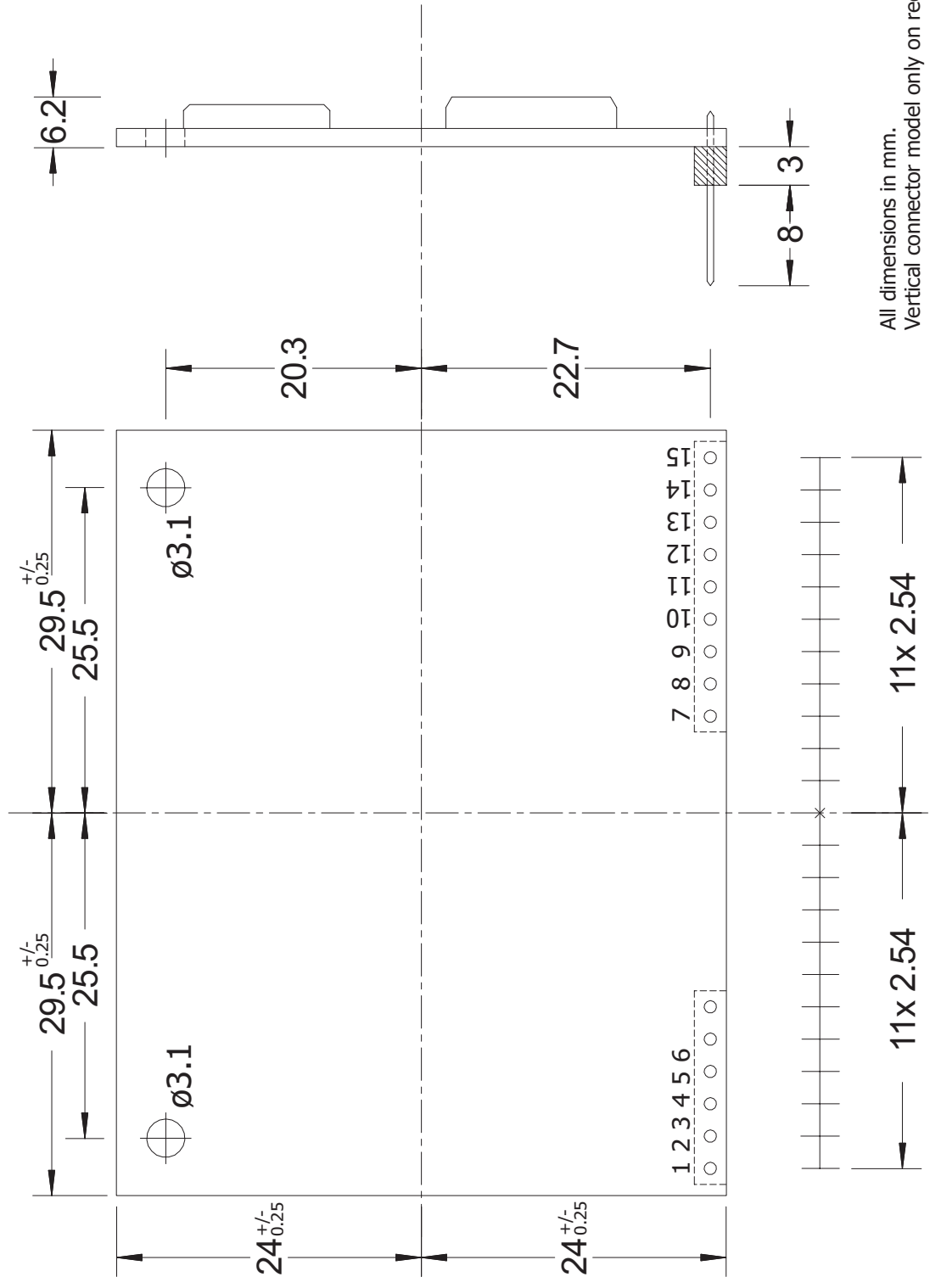
Recommended circuit for stand-alone stereo effect units and Karaoke systems



Notes:

- 1) R1/R10 must limit the maximum input level on 4Vp-p to the effect board. Therefore choose the right value to prevent distorted effect sound.
- 2) R2/R20 are fixing the portion of effect signal level to original signal level. Use 10K's for more wet sound - use 22K's for less wet sound.

ACE 32's Board Dimensions - Horizontal Connector Model



All dimensions in mm.
Vertical connector model only on request.