SIMLATUS

ADA-101

Analog Audio
Distribution Amplifier

Simlatus Corporation
175 Joerschke Drive, Suite A
Grass Valley, CA 95945
Phone: 530-205-3437 Fax: 530-273-8482
sales@simlatus.com
www.simlatus.com

SIMLATUS

Statement of Warranty

Simlatus Corporation warrants its products for a period of three (3) years from the date of shipment to be free from defects in materials and workmanship and meets applicable published specifications. Equipment which has been operated within its ratings and has not been subjected to mechanical or other abuse or modification by the purchaser, its agents, and/or employees, will, at the option of Simlatus, be replaced or repaired if it is returned, freight prepaid, to Simlatus. Equipment that fails under conditions other than described herein will be repaired at the price of components and labor in affect at the time of repair.

This warranty is in lieu of all other warranties, expressed or implied, with respect to the condition or performance of any Simlatus product, its merchantability or fitness for a particular purpose. Simlatus Corporation is not liable for any consequential damages.

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area could cause harmful interference in which case the user will be required to correct the interference at his own expense.

Copyright

May 2016
Part Number **71-0024**

Table of Contents

Section I

General Description 1

Section II

Specifications 2

Section III

Installation 3

Section IV

Circuit Description 4

Section V

Diagrams 5

Module Schematics 6

SECTION I

ADA-101

General Description

The ADA-101 is a modular, high performance audio distribution amplifier intended for studio quality audio distribution systems. It is designed to be operated from the Simlatus AMF-100 mounting frame, or it is pin-compatible with the Leitch* FR-883/884 audio mounting frames.

The module can be configured as a one-input by eight-output monaural, or as two, one-input by four-output stereo amplifiers, just by moving one internal jumper. In the MONO mode only the *Channel A* input connector is used. The *Channel B* input is left unconnected.

All inputs can be connected balanced or unbalanced. Outputs are always balanced. Both preset and variable gain controls are available which will provide a gain range of -6 to +33dB.

Each module has its own on-board voltage regulators with fuse protection. Any failure of a single module will not affect any other.

*Leitch is a trademark of Leitch Technology International, Inc.

SECTION II

ADA-101

Specifications

Input:

Number	2, Channel A and Channel B, (Channel A used for mono)
Type	Differential
Impedance	>30KΩ balanced, >12KΩ unbalanced
Maximum level	+30dBu (66Ω), +24dBm (600Ω)
Common Mode Rejection, (CMRR)	>90dB @60Hz, >60dB @20KHz
Common Mode Range	±20volts

Outputs:

Channels	1 (mono) or 2 (stereo)
Outputs per channel	4 balanced stereo 8 balanced monaural
Impedance	66Ω balanced or 600Ω balanced
Maximum Level	+30dBu (66Ω), balanced +24dBm (600Ω), balanced

Performance:
(each channel)

Gain range	-6dB to +33dB (± 6dB with pot, and 0, +9, +18, +27dB with jumpers)
Frequency Response	±0.05dB, 20Hz to 20KHz, ref. 1KHz any level up to +30dBu (66Ω), +24dBm (600Ω)
Total Harmonic Distortion, (THD)	<0.05%, 20Hz to 20KHz @ 30dBu, +24dBm (600Ω)
Intermodulation Distortion, (IMD)	<0.02% 4:1 SMPTE @18dBu (66Ω), +18dBm (600Ω)
Isolation between Modules	>100dB, 20Hz – 20KHz
Interchannel Crosstalk	>95dB, 20Hz – 20KHz
Power Dissipation	<2W

* Specifications and design are subject to change without notice.

SECTION III

ADA-101

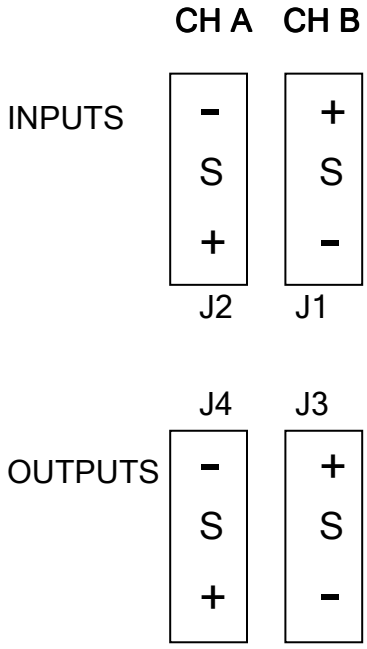
Installation and Operation

The ADA-101 audio distribution amplifier is designed to be mounted in either the Simlatus AMF-100 audio mounting frame, (up to twelve modules), or a Leitch* audio frame (such as the FR-883 or FR-884). There are no special cooling requirements, although care should be taken to ensure that extremely hot equipment is not installed directly beneath the frame.

It is recommended that when redundant power supplies are included in the frame, the two power cords be connected to different AC supplies. In this way the frame will continue to operate even if there is a partial failure of plant power.

Before installing the module in the frame, it is necessary to set the internal jumpers to the desired mode. Jumper H2 selects either MONO or STEREO mode, and jumpers H1 and H3 set the desired gain of each channel.

The frame input and output connections are similar for both the Simlatus and the Leitch* frames. They consist of three-pin terminal blocks as defined below:



SECTION IV

ADA-101

Circuit Description

The ADA-101 consists of two identical input circuits and two identical groups of four output circuits. A jumper (H2) permits the two output channels to be both connected to one input channel for use as a one input, eight output monaural amplifier or a two channel, four output stereo amplifier. Since both input amplifiers are the same only the A channel will be described.

The differential input signal is applied to the inverting inputs of U3:A and U3:B. An inverted version of the common mode signal (if any) is also applied to these inputs from U6:A such as to cancel any common mode component at the outputs of U3:A and U3:B. The outputs from U3:A and U3:B are then applied to the differential amplifier, U6:B. Optimum common mode balance is achieved by adjusting RV3 at the output of U6:A.

The output from the differential amplifier passes via the gain control potentiometer, RV1, to the programmable gain amplifier, U5:A. This amplifier provides fixed gains of 0dB, +9dB, +18dB and +27dB. The desired gain is set by H1.

The output from U5:A is connected to the first group of four output amplifiers and also to the MONO/STEREO selector, H2. U4:A provides the un-inverted signal to the non-inverting output drivers, while U4:B provides an inverted signal to the inverted output drivers. The A channel drivers are contained in U1 and U8 while the B channel drivers are contained in U2 and U9. U4:C and U4:D provide the input to the B channel output drivers.

The input and gain stages are powered from ±15V supplies provided by VR1 and VR2.

The output drivers are powered directly from the ±21V supplies.

SECTION V

ADA-101

Diagrams

ADA-101 PIN ASSIGNMENTS

ADA-101 AUDIO DISTRIBUTION AMPLIFIER

PS-102 AUDIO POWER SUPPLY

PIN ASSIGNMENTS

ADA-101

Audio Distribution Amplifier

INPUT A -.....A	1....INPUT A+
OUTPUT 1 -.....B	2.....OUTPUT 1+
OUTPUT 2 -.....C	3....OUTPUT 2+
OUTPUT 3 -.....D	4....OUTPUT 3+
OUTPUT 4 -.....E	5....OUTPUT 4+
INPUT B -.....F	6....INPUT B+
OUTPUT 5 -.....G	7....OUTPUT 5+
N.C.....H	8....OUTPUT 6+
N.C.....I	9....GND
OUTPUT 6 -.....J	10...OUTPUT 7+
GND.....K	11...+21 VOLTS
OUTPUT 7 -.....L	12...OUTPUT 8+
N.C.....M	13...-21 VOLTS
OUTPUT 8 -.....N	14...N.C.
N.C.... O	15...GND