

# **READ THIS FIRST!**

## **Save Time and Avoid Damage!**

We realize that you will want to start installing your new equipment right away. But, you will save time and avoid costly damage by taking a few moments to review the following helpful information before you proceed.

### **1. Installation and Cable Connections**

Before turning the power on, consult the "Installation" section of this manual to obtain specific advice about cable connections, switch settings and jumper configurations.

### **2. Operation**

See the "Operation" section for proper use of your new equipment.

### **3. Calibration**

All Ross Video Terminal Equipment is factory calibrated. Adjustment of sealed calibration components or any repairs to this unit, are to be performed by an authorized Ross Video technician. Unauthorized repairs will void your Warranty.

### **In Case of Problems**

If you encounter any problems with the installation of this unit, please call our Customer Service Department at (613) 652-4886, 24 hours a day, 7 days a week.

Advice is available, without charge, for the life of this equipment, not just for the warranty period.

**Section 7**

*ADA 7555*

**Stereo/Mono Distribution Amplifier**

Issue 2

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## ADA-7555 • Stereo/Mono Distribution Amplifier – User Manual

- Ross Part Number: **AM-7555-02**
- Document Issue: **2**
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The information contained in this guide is subject to change without notice or obligation.

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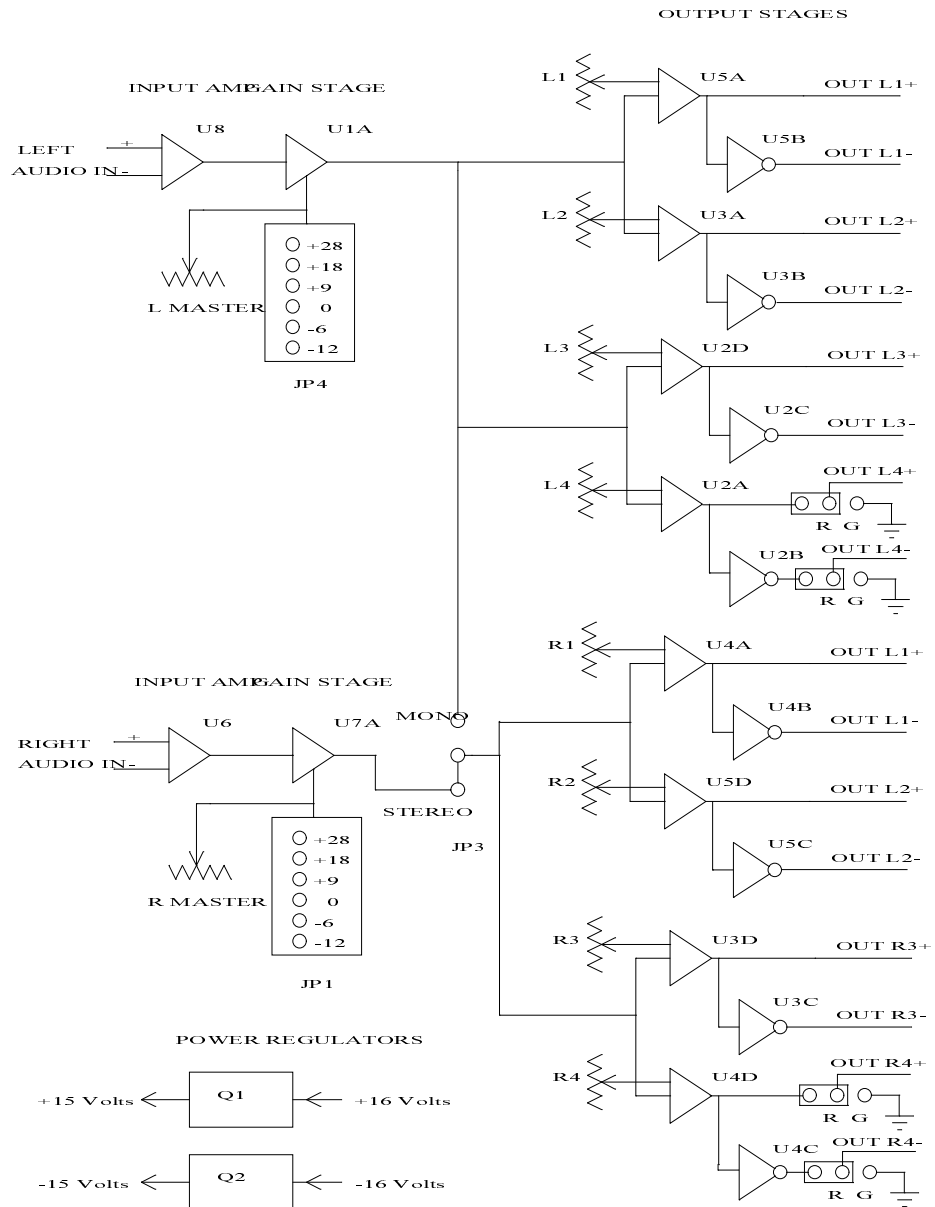
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# ADA 7555 BLOCK DIAGRAM



### **Introduction**

The ADA-7555 Distribution Amplifier provides an ideal solution for situations where the distribution system must feed different signal levels to various pieces of equipment or output lines.

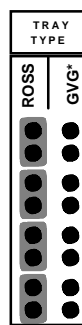
Each of the 8 outputs has a separate level control with a +/-6 dB range. Two separate 4-output amplifiers are contained on a card for stereo use. A jumper plug provides a Mono mode in which all eight outputs are fed from the Left input.

The Left and Right Amplifiers each have a master gain control with +/-6 dB range and a gain-setting jumper with positions from -12 dB to +28 dB to accommodate a wide range of input levels.

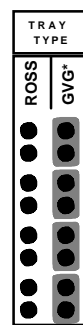
### **Installation**

The card TRAY TYPE jumper (JP2) settings must be set before use. When set to the ROSS position, four sets of stereo outputs are available. When set to the GVG position, only three sets of outputs are available.

All jumper plugs must be set in a vertical row corresponding with the tray type designation as follows:



Ross Trays



GVG\* Trays

#### **CAUTION:**

If JP2 is not set correctly for a GVG tray, damage to the integrated circuits may occur.

### **Operation**

Master Gain controls are provided for setting the nominal gain of each amplifier channel.

The GAIN jumper plugs are to be set for the desired gain range. In most installations they will be set to the 0 dB position to obtain unity gain.

The MASTER GAIN potentiometer provides a fine control of the overall channel gain and has a range of +/- 6dB. Output GAIN controls provide output gain adjustment of +/- 6dB for each of the eight outputs.

There is no need to set the common mode BAL adjustment as it has been precisely factory pre-set and sealed. This amplifier incorporates an advanced type of input stage that does not have to be balanced for each installation.

Jumper JP3 is normally set to the STEREO position. Setting it to MONO configures the board as a single eight-output mono amplifier.

### **Circuit Description**

Both the right channel and left channel employ identical circuits so only the left channel description follows.

The input stage, U8, performs the function of converting the balanced input signal into an unbalanced (single ended) signal for further processing.

This stage is unique because it functions exactly as if the amplifier had a floating transformer input. This means that it responds only to the voltage difference between the two input lines and ignores any imbalance to ground. This gives the distribution amplifier the very desirable ability to accept any out-of-balance input signal and produce a perfectly balanced output. As a consequence, it also has an exceptional ability to reject common mode hum and noise over the whole audio band.

The input circuit includes diodes to protect the amplifier against damaging input noise spikes.

The amplifier master gain is provided by circuit U1A. JP1 selects the desired gain range. The Left Master Control (RV5) provides vernier master gain adjustment.

The positive line outputs are driven by the adjustable gain stages U5A, U3A, U2D and U2A. 10K potentiometers RV10, RV7, RV3 and RV1 provide +/- 6dB of gain variation for each of the four outputs L1 to L4 respectively. The positive variable gain stages then drive inverting unity gain amplifiers U5B, U3B, U2C, U2B to provide the negative side of each balanced output.

These circuits are designed to be very stable and not oscillate at any normal line load.

The power input voltage of approximately +/- 16 volts is reduced to +/- 15 volts by filtering circuits Q1 and Q2. This lower voltage powers the input and gain stages while the output stages are fed directly from the power supply.

### **Alignment**

The only alignment controls provided are for balancing the common-mode rejection of the input amplifiers. To adjust the R BAL control, make the indicated connections to the terminal block associated with the particular amplifier.

#### **NOTE:**

Because this control has been precisely calibrated at the factory, it must not be adjusted unless U8 or U6 have been replaced.

1. Place the amplifier on the extender board.
2. Use a short jumper wire to connect the tray R INPUT plus and minus terminals together.
3. Connect an audio generator between either tray R input and ground. Set the generator frequency to 1 KHz and output level to +20 dBu.
4. Connect a balanced-input sensitive audio level meter or distortion analyser to a balanced pair of amplifier outputs.
5. With the output level meter set to the most sensitive scale, adjust the R BAL potentiometer to obtain the lowest possible output level. It should be possible to obtain an output level of at least -80 dBu. (100dB below +20 dBu). Seal the pot.
6. Proceed in a similar manner to set the L BAL pot.
7. Disconnect the test set up.

**Specifications**

<b>Input</b>	Input Impedance	>35K ohms, balanced
	Max Input Level	+34 dBu [ +30 dBm ]
	Common Mode Rejection	>100 dB @ 60 Hz >80 dB @ 20 KHz
<b>Output</b>	Number of Outputs	4 Stereo outputs, (3 in GVG* 8550 Series Trays)
	Max Output Level	+28 dBu [ +22 dBm ]
	Output Impedance	48 ohms, [ 600 ohms]
	Output Isolation	>70 dB
<b>Performance</b>	S/N Ratio	>90 dB (unity gain) relative to +8 dBu
	Gain Range	+/-6
	Frequency Response	+/- 0.02 dB 20 Hz to 20 KHz
	Total Harmonic Distortion + Noise	<0.0045% [ 0.01% ]
	Intermodulation	<0.0035% [ 0.01% ] (SMPTE)
	Crosstalk between Amplifiers	>100 dB
	Interchannel Crosstalk	>80 dB @ 1 KHz
	Power Consumption @ +8 dBu output	2.1 W [ 3.1 W]

All tests performed at +18 dBu and cover 20 Hz to 20 KHz unless otherwise specified. All measurements made with an Audio Precision System One test set. Performance of the 600 ohm version is similar, except where indicated [ ].

**ADA-7555**  
**Bill Of Materials**

7555A-001 Issue: 2

Item	QTY	REF	Part	Description	Part Number
1	2	C18,C17	NVC	NO VALUE CAPACITOR DCAP\SR21	-----
2	2	TP2,TP3	NVTP	NO VALUE TEST POINT	-----
3	2	C16,C8	22p	CAPACITOR CERAMIC 100V 2% 22p	201-220
4	2	C23,C7	47p	CAPACITOR CERAMIC 100V 2% 47p	201-470
5	8	C1,C3,C5,C6,C9,C10,C15, C24	100n	CAPACITOR GLASS 100n	225-100
6	2	C19,C21	47u	CAPACITOR TANTALUM 16V 47u	250-006
7	4	C13,C14,C20,C22	6u8	CAPACITOR TANTALUM 25V 6u8	250-008
8	4	C2,C4,C11,C12	100u 250-010	CAPACITOR TANTALUM 10V 100u	250-010
9	1	J1	311-035	CONNECTOR 2X25P PCB MNT RECEPTACLE 90DEG	311-035
10	8	CR1,CR2,CR3,CR4,CR5,CR6, CR7,CR8	1N4148	DIODE SIGNAL GP 1N4148	360-005
11	1	MP1	365-003	PCB EJECTOR	365-003
12	2	JP4,JP1	403-004-12	HEADER 12 PIN 2 ROW MALE PL.23 BL.1 LL.1	403-004-12
13	1	JP2	403-004-16	HEADER 16 PIN 2 ROW MALE PL.23 BL.1 LL.1	403-004-16
14	1	JP3	403-013-03	HEADER 3 PIN 1 ROW MALE PL.23 BL.1 LL.1	403-013-03
15	2	U1,U7	NE5532N	INT-COMPENSATED DUAL LO-NOISE OP AMP	504-129
16	2	U8,U6	SSM-2143P	-6dB DIFFERENTIAL LINE RECEIVER	504-130
17	4	U2,U3,U4,U5	TLE2064CN	FET-INPUT HIGH-OUT POWER QUAD OP AMP	504-155
18	7	JPPLUG1,JPPLUG2D, JPPLUG2C,JPPLUG2B, JPPLUG2A,JPPLUG3,JPPLUG4	603-005	JUMPER 2-POSITION LOW PROFILE	603-005
19	2	RV12,RV8	100R 1T	VARIABLE RESISTOR 1/4 DIA 1-TURN 100R	710-002
20	10	RV1,RV2,RV3,RV4,RV5,RV6, RV7,RV9,RV10,RV11	10K 720-002	VARIABLE RESISTOR 20-TURN 10K	720-002
21	1	PCB	7555-001-02	STEREO/MONO AUDIO AMP WITH O/P CONTROLS	7555-001-02
22	2	F1,F2	1R 1%	RESISTOR 1/4W 1% 1R	810-100
23	2	R65,R14	174R 1%	RESISTOR 1/4W 1% 174R	812-174
24	2	R79,R32	270R 1%	RESISTOR 1/4W 1% 270R	812-270
25	2	R66,R15	634R 1%	RESISTOR 1/4W 1% 634R	812-634
26	2	R69,R31	787R 1%	RESISTOR 1/4W 1% 787R	812-787
27	8	R1,R3,R17,R18,R35,R36, R49,R51	887R 1%	RESISTOR 1/4W 1% 887R	812-887
28	2	R67,R29	2K32 1%	RESISTOR 1/4W 1% 2K32	813-232
29	8	R2,R4,R19,R20,R34,R37, R50,R52	4K99 1%	RESISTOR 1/4W 1% 4K99	813-499
30	16	R5,R6,R8,R10,R21,R23,R25, R27,R38,R39,R42,R53,R55, R57,R59,R72	20K 1%	RESISTOR 1/4W 1% 20K	814-200
31	2	R44,R77	52K3 1%	RESISTOR 1/4W 1% 52K3	814-523
32	16	R7,R9,R11,R12,R22,R24, R26,R28,R40,R41,R43,R54, R56,R58,R60,R73	24R	RESISTOR 1/2W 5% 24R	825-240
33	2	R78,R64	47R	RESISTOR 1/2W 5% 47R	825-470
34	2	R30,R68	1K	RESISTOR 1/2W 5% 1K	827-100
35	2	R71,R74	1K8	RESISTOR 1/2W 5% 1K8	827-180
36	2	R45,R46	2K7	RESISTOR 1/2W 5% 2K7	827-270
37	2	R75,R61	4K7	RESISTOR 1/2W 5% 4K7	827-470
38	2	R13,R47	6K8	RESISTOR 1/2W 5% 6K8	827-680
39	2	R33,R70	10K	RESISTOR 1/2W 5% 10K	828-100
40	2	R16,R48	12K	RESISTOR 1/2W 5% 12K	828-120
41	4	R62,R63,R76,R80	10K 0.5%	RESISTOR 1/4W 0.5% 10K	840-059
42	1	TP1	910-010	TEST POINT	910-010
43	1	Q1	2N3904	TRANSISTOR N-P-N	950-016
44	1	Q2	2N3906	TRANSISTOR P-N-P	950-018

## ADA-7555 Stereo/Mono Audio Distribution Amplifier

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7555A-001A (600 ohm version)

Bill of Materials same as per 7555A above with the following exceptions:

Item 32:	300 R	RESISTOR 1/2 W 5% 300R	826-300
Item 34:	1K2	RESISTOR 1/2 W 5% 1K2	827-120
Item 37:	2K4	RESISTOR 1/2 W 5% 2K4	827-240

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## Ross Gear Terminal Equipment • Warranty and Repair Policy

This **Ross Gear Terminal Equipment** product is warranted to be free of any defect with respect to performance, quality, reliability and workmanship for a period of **FIVE (5)** years from the date of shipment from our factory.

In the event that your **Ross Gear** product proves to be defective in any way during this warranty period, we will gladly repair or replace this piece of equipment with a unit of equal or superior performance characteristics.

Should you find that this **Ross Gear** product has failed after your warranty period has expired, we will repair your defective piece of equipment for as long as suitable replacement components are available. You, the owner, will bear any labour and/or component costs incurred in the repair or refurbishment of said equipment, beyond the **FIVE (5)** year warranty period.

Should your **Ross Gear** product be of our **Digital Terminal Equipment** product line, a power supply, or carries any surface mount devices, proves to be defective, we would ask that your piece of equipment be repaired by an authorized **Ross Video Limited** factory representative. Any attempt to repair this product by anyone other than an authorized **Ross Video Limited** factory representative, will void your warranty.

If this is a manual for a **Ross Gear** product of our **Digital Terminal Equipment** product line, a power supply, or piece of equipment which carries surface mount devices, you will find it provides all pertinent information for the safe installation and operation of your Ross Gear product.

If this is a manual for a **Ross Gear** product from our **Analog Terminal Equipment** product line, you will find it provides all pertinent information for the safe installation and operation of your **Ross Gear** product. Included in this manual if this product does not carry any surface mount devices, you will also find schematics, bills of materials and layout drawings. These are provided for your convenience, should you find it necessary to perform discretionary field repair or modifications to your **Ross Gear** product.

**Ross Video Limited** reserves the right to assess any modifications or repairs made by you and decide whether they fall within warranty limitations, should you decide to return your **Ross Gear** product for repair.

In no event shall **Ross Video Limited** be liable for direct, indirect, special, incidental, or consequential damages (including loss of profits) incurred by the use of this product. Implied warranties are expressly limited to the duration of this warranty.

### **In Case of Problems:**

Should any problem arise with your **Ross Gear Terminal Equipment Product**, please contact our **Customer Service Department** at **613-652-4886**, 24 hours a day, 7 days a week.

A Return Material Authorization number (RMA) will be issued to you, as well as specific shipping instructions, should you wish our factory to repair your **Ross Gear** product. A temporary replacement, if required, will be made available for a nominal charge. Any shipping costs incurred, will be the responsibility of you, the customer. All products shipped to you from **Ross Video Limited**, will be shipped collect.

**Ross Gear Terminal Equipment** product advice is available without charge for the life of this equipment, not just the warranty period.