



# **IQ SYSTEM MIXER SERVICE MANUAL**

***MPX-6<sup>™</sup>***  
***SMX-6<sup>™</sup>***  
***AMB-5<sup>™</sup>***

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K-SVCIQMIX  
11-96  
REV. A

The information furnished in this manual does not include all of the details of design, production, or variations of the equipment. Nor does it cover every possible situation which may arise during installation, operation or maintenance. If you need special assistance beyond the scope of this manual, please contact the Crown Technical Support Group.

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<p style="text-align: center;"><b>CAUTION</b></p> <p style="text-align: center;">RISK OF ELECTRICAL SHOCK DO NOT OPEN</p> <p><b>TO PREVENT ELECTRIC SHOCK DO NOT REMOVE TOP OR BOTTOM COVERS. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. DISCONNECT POWER CORD BEFORE SERVICING.</b></p>	<p style="text-align: center;"><b>AVIS</b></p> <p style="text-align: center;">RISQUE DE CHOC ÉLECTRIQUE N'OUVREZ PAS</p> <p><b>À PRÉVENIR LE CHOC ÉLECTRIQUE N'ENLEVEZ PAS LES COUVERCLES. IL N'Y A PAS DES PARTIES SERVICEABLE À L'INTÉRIEUR. TOUS REPARATIONS DOIT ÊTRE RAIRE PAR PERSONNEL QUALIFIÉ SEULMENT.</b></p>
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**WARNING**

**TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE!**

## Table of Contents

Introduction .....	4
Scope .....	4
Warranty .....	4
Parts Information .....	5
Specifications .....	6
Circuit Theory .....	7
Electrical Checkout Procedures .....	12
MPX Chassis and Miscellaneous Parts List .....	15
SMX Chassis and Miscellaneous Parts List .....	16
AMB Chassis and Miscellaneous Parts List .....	17
MPX Input Module Electrical Parts List .....	18
MPX Output Module Electrical Parts List .....	23
SMX/AMB Input Module Electrical Parts List .....	26
SMX/AMB Output Module Electrical Parts List .....	32
MPX Audio Inputs 1 and 2 Schematic .....	36
MPX Audio Inputs 3 and 4 Schematic .....	37
MPX Audio Inputs 5 and 6 Schematic .....	38
MPX VCA Calibration and Stack Input Schematic .....	39
MPX Audio Output Schematic .....	40
MPX Power Supply Schematic .....	41
MPX Gain Calibration Schematic .....	42
MPX Processor and Communication Schematic .....	43
SMX/AMB Audio Inputs 1 and 2 Schematic .....	44
SMX/AMB Audio Inputs 3 and 4 Schematic .....	45
SMX/AMB Audio Inputs 5 and 6 Schematic .....	46
SMX/AMB VCA Calibration and Stack Input Schematic .....	47
SMX/AMB Audio Output Schematic .....	48
SMX/AMB Power Supply Schematic .....	49
SMX/AMB Gain and Level Detection Calibration Schematic .....	50
SMX/AMB Processor and Communication Schematic .....	51
SMX-6T Transformer Isolation Version .....	52

## Introduction

This manual contains service information on Crown IQ System mixer products including the SMX-6, MPX-6, and the AMB-5. It is intended to be used in conjunction with the applicable Owner's Manual or Reference Manual and other user oriented documentation. However, some important information is duplicated in this Service Manual in case the Owner's Manual is not readily available.

**NOTE: THE INFORMATION IN THIS MANUAL IS INTENDED FOR USE BY AN EXPERIENCED TECHNICIAN ONLY!**

### SCOPE

This Service Manual applies to all versions of the MPX-6, SMX-6, and AMB-5 mixers. For parts in other IQ products contact the Crown Technical Support Group for help in finding part numbers.

This Service Manual includes several sections. These sections include Parts Information, Specifications, Voltage Conversion, Circuit Theory, Electrical Test Procedures, Non-Module Parts Lists, and Module Parts Lists. Schematics are attached. Note that component parts with circuit board comprise a complete module. Module part numbers are always associated with a specific circuit board, although an unpopulated

circuit board may be built up with different parts to create different modules. Note that Crown does not sell blank (unpopulated) circuit boards.

Each of the mixers are designed for professional or commercial use. Providing high quality 6 x 2 mixing from 20Hz to 20KHz with minimum distortion, they feature balanced inputs and outputs for audio and Crown Bus and serial port communication connections. Specific features vary depending on model.

### WARRANTY

Each Owner's Manual contains basic policies as related to the customer. In addition it should be stated that this service documentation is meant to be used only by properly trained service personnel. Because most Crown products carry a 3 Year Full Warranty (including round trip shipping within the United States), all warranty service should be referred to the Crown Factory or Authorized Warranty Service Center. See the applicable Owner's Manual for warranty details. To find the location of the nearest Authorized Service Center or obtain instructions for receiving Crown Factory Service please contact the Crown Technical Support Group (within North America) or your Crown/Amcron Importer (outside North America).

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Factory Service  
Parts Department**

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## Parts Information

### GENERAL INFORMATION

Later sections include both mechanical and electrical parts lists for these products. Crown reserves the right to modify and improve its products for the benefit of its customers.

### PART NUMBERING SYSTEMS

Crown uses a special parts numbering system for IQ products. In most cases part numbers are six digits long.

### STANDARD AND SPECIAL PARTS

Many electrical and electronic parts used by Crown are stocked by and available from electronic supply houses. However, some electronic parts that appear to be standard are actually special. A part ordered from Crown assures an acceptable replacement. Structural items such as modules and panels are available from Crown only.

### ORDERING PARTS

When ordering parts, be sure to include the product model, a description of each part, and part number (IQPN) from the parts listing. Price quotes are available on request.

### SHIPMENT

Shipment will be normally made by UPS or best other method unless you specify otherwise. Shipments are made to and from Elkhart, Indiana USA, only. Established accounts with Crown will receive shipment freight prepaid and will be billed. All others will receive shipment on a C.O.D. or pre-payment (check or credit card) basis.

### TERMS

Normal terms are prepaid. Net-30 Days applies to only those firms having pre-established accounts with Crown. If prepaying, the order must be packed and weighed before a total bill can be established, after which an amount due will be issued and shipment made upon receipt of pre-payment. New parts returned for credit are subject to a 10% restocking fee, and authorization from the Crown Parts Department must be obtained before returning parts for credit.

Crown is not a general parts warehouse. Parts sold by the Crown Parts Department are solely for servicing Crown/Amcron products. **Part prices and availability are subject to change without notice.**

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## Specifications

### GENERAL

**Protection:** Audio outputs can be shorted indefinitely without causing damage. If communication is lost the unit will continue functioning as programmed. If power is interrupted the unit will function as programmed before the AC failure when the power is restored.

**Display:** A red Enable LED lightes when power is applied to the unit. A yellow DSPI (data signal presence indicator) LED lights when commands are being received by the unit or when forced on manually via software.

**AC Mains:** 120VAC at 60 Hz at 20 Watts with standard three-wire grounded connector for North American units. Contact Crown for information about international versions.

### CONTROLS

**IQ Address:** Eight segment DIP switch mounted on the side of the unit is used to set the eight bit loop address. A valid address is 1 to 250 where there are no two of the same type of mixer on the same Crown Bus loop having the same address.

**Serial Port Setup:** A six segment DIP switch mounted on the side of the unit is used to setup the baud and parity parameters for use of the serial port. Up to 19,200 baud is available. Parity is normally off, however if on it may be set to odd or even. A two position slide switch is used to configure the serial port for RS232 or RS422.

**M/L/P Switches:** A three position slide switch at each main input configures the associated input for line level, mic level, or mic level with +44VDC phantom power. In the line position 0dB gain is added, however in either the mic or phantom positions 25 dB of gain is added.

**Gain Controls:** A trim pot at each main input adjusts gain at the associated input by -12 to +21 dB.

### CONNECTORS

**Aux Port:** A three pin TB-3M port is provided to control or monitor an auxiliary device. Pin 1 is grounded. Pin 2 senses a logic level high when 5VDC or higher is applied or a low when 0.8 VDC or lower is applied (if not tied to a high or low source the sense pin floats and may indicate high or low at random). Pin 3 supplies +10VDC at 16 ma when switched on or open collector output when switched off.

**Main Inputs:** Six main inputs, a three terminal (balanced) removable barrier block per input.

**Stack Inputs:** Two stacking inputs, unbalanced RCA phone jacks per input.

**Main Outputs:** Two buffered main outputs, three terminal (balanced) removable barrier block.

**Bus Outputs:** Two buffered bus outputs with isolation relays, three terminal (balanced) removable barrier block.

**Crown Bus:** Four terminal removable barrier block with chassis ground stud for input shield.

**Serial Port:** Female 25 pin D-shell connector for RS232/RS422 connection.

### AUDIO

**Input Type:** Active differential.

**Input Impedance:** Line: nominally 20K ohms balanced or 13K ohms unbalanced. Mic: nominally 4K ohms balanced.

**Maximum Input Level:** Microphone: +7 dBu. Line: +32 dBu.

**Phantom Power:** +44 VDC through two 6810 ohm resistors when switched on.

**Common Mode Rejection Ratio:** 60 Hz to 1 kHz: 55 dB typical. 20 Hz to 20 kHz: 45 dB.

**Output Type:** Active differential. Transformers optional for SMX-6. For unbalanced output operation leave negative terminal unconnected.

**Output Impedance:** 100 ohms balanced, 50 ohms unbalanced.

**Maximum Output Level:** +26 dBu.

**Maximum Gain:** Mic: +71 dB. Line: +46 dB.

**Frequency Response:** +0/-1 dB from 20 Hz to 20 kHz.

**Total Harmonic Distortion (THD):** <0.05% at +4 dBm output, <0.15% at +20 dBm output from 20 Hz to 20 kHz measured at mic input with 40 dB gain.

**Noise:** Output noise all inputs off: -80 dBu (106 dB below rated output). Output noise, one line input at 0 dB gain: -80 dBu. Equivalent input noise, mic input, 46 dB gain, 150 ohm source: -125 dBu. Specs are typical, unweighted, 20 Hz to 20 kHz.

**Crosstalk:** Adjacent input/outputs at 1 kHz: better than -80 dB. Adjacent inputs/outputs from 20 Hz to 20 kHz: better than -65 dB.

### MECHANICAL

**Construction:** 16 GA steel chassis, 18 GA steel cover, 0.125 inch (3.2 mm) aluminum front panel.

**Finish:** Black splatter-coat chassis and front panel.

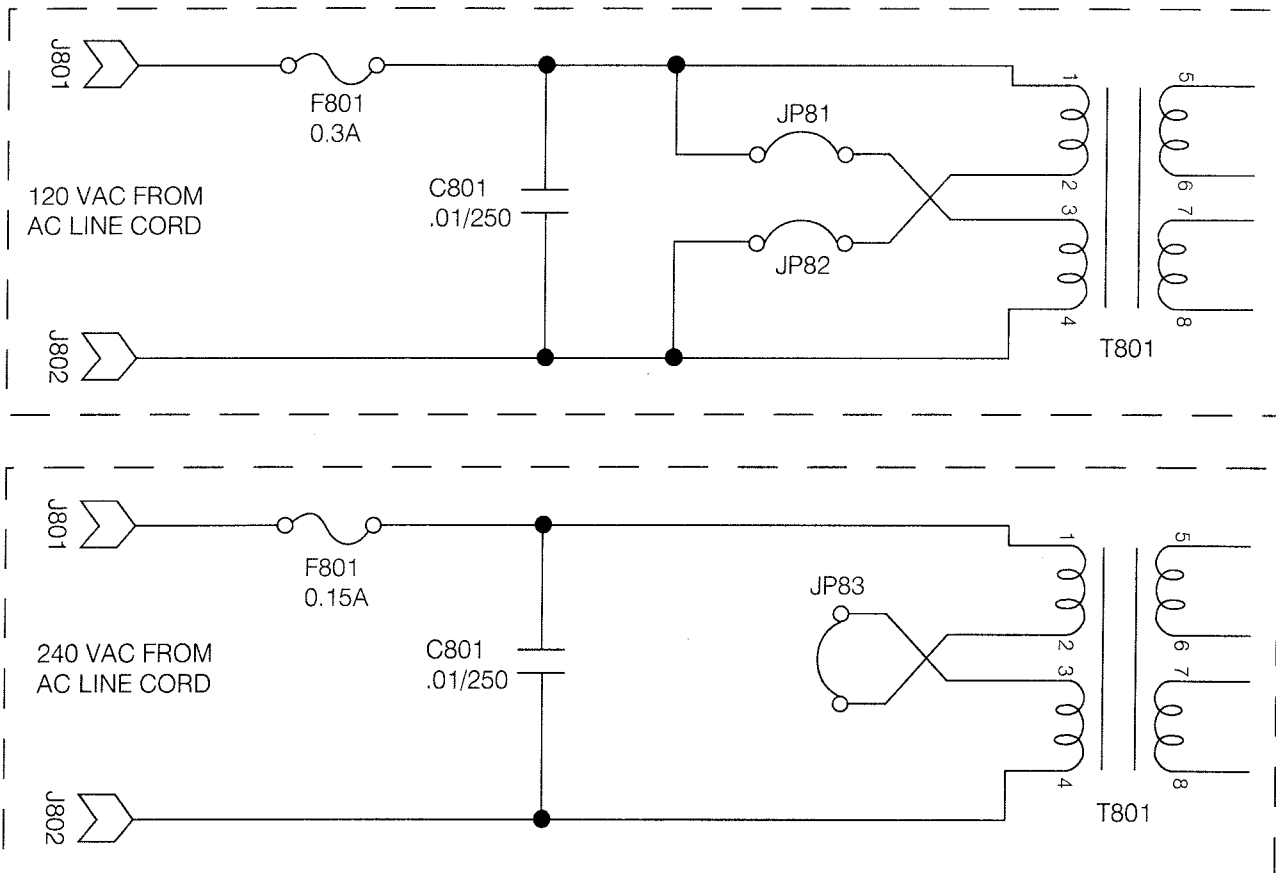
**Dimensions:** 19 inches (48.3 cm) wide, 1.75 inches (4.4 cm) high, 9.8 inches (24.9 cm) deep behind front mounting surface, 0.15 inches (3.8 mm) in front of mounting surface.

**Weight:** 8 lbs, 13 oz. (4 kg).

## Voltage Conversion

The IQ System mixer products may be configured for either 120VAC or 240VAC power sources. This is done by changing jumper configurations and the AC fuse. Capacitor C7 should also be changed to accommodate higher line voltage, but if C7 is already configured for 240 VAC operation it does not necessarily have to be changed to switch to 120 VAC. Figure 1 shows a chart and schematics of critical parts for AC configuration changes. Refer also to the main schematics and parts lists for the applicable mixer.

AC LINE	F1	C7	JP1	JP2	JP3
120VAC	.3A	0.01/125V	IN	IN	OUT
240VAC	.15A	0.01/250V	OUT	OUT	IN



*Figure 1. Mixer Line Voltage Configurations*

# Theory

## OVERVIEW

This section of the manual explains operation of the mixer circuitry at a block diagram level. Functions of the mixers vary based on the firmware although hardware is very similar in all three models. When servicing a mixer, the firmware is not thoroughly tested for the advanced features and functions. Owner's/Reference Manuals and software documentation are the best resources for this information.

Front and rear panels of each mixer are shown in Figures 2 through 4. The block diagram in Figure 5 is the basis for most of the discussions in this section of the manual. Figure 6 shows the location and setup of the communication parameters. Refer also to schematics at the rear of this service manual.

## AUDIO PATH

The audio path through each mixer is basically the same. There are six main inputs and two main outputs. Stack inputs are provided so that multiple units may be used together to provide more inputs to common mix. Bus outputs are separately buffered and relay isolated copies of the main outputs.

## Preamps

Inputs go through a preamp stage and a sense node (SMX and AMB only). The preamp stage includes the rear panel gain trim adjustment (-12 dB to +21 dB) and the Mic/Line/Phantom (M/L/P) switch. The M/L/P switch provides 0 dB gain in the Line position and +25 dB gain in either the Mic or Phantom position. When in the Phantom position, +44 VDC phantom power is



Figure 2. MPX-6 Front and Rear Panels



Figure 3. SMX-6 Front and Rear Panels



Figure 4. AMB-5 Front and Rear Panels



## Theory

provided for a condenser microphone. Input impedance is also lower for mic level inputs than for line level inputs. The sense node of the SMX and AMB units is used by the processor to provide monitoring information to the operator and to perform internal automatic level adjustments such as gating and compression.

### VCAs

After the sense node the signal goes to two Voltage Controlled Amplifiers (VCAs) under processor control which determine how much of the input goes to each mix bus. In the MPX there are 12 VCAs total include six for mix 1 and six for mix 2 (two VCAs per input). In the SMX there are also 12 VCAs, arranged like the MPX, but the sensing capability allows the processor to automate VCA control with advanced functions such as gating and compression. The AMB is slightly different. It offers 11 VCAs under processor control. Five VCAs deliver signal to mix 1 under manual or automatic processor control. The sixth input to output 1 is used only for sensing and is not actually allowed to enter mix 1. All six inputs may be routed to mix 2, however the processor only allows for manual mixing to mix 2. These variations in hardware and firmware differentiate the MPX-6 as a 6 x 2 manual mixer/router, the SMX-6 as a 6 x 2 automatic mixer, and the AMB-5 as a 5 x 1 automatic mixer with ambient noise compensation. The ambient noise compensation is a firmware related feature that sets the AMB-5 operation apart.

### Stack Inputs

Stack inputs are unbalanced inputs which are buffered from their corresponding mix bus. The purpose of the stack inputs is to allow a signal to enter the mix without benefit of preamp and processor VCA gain control. The application for this would likely be when two or more units are used to create a wider composite mixer, such as a 12 x 2 configuration, without having to use main inputs to reprocess outputs of the upstream mixer.

### Outputs

VCA outputs are passively mixed onto two mix buses. Mix (output) level is sensed in SMX and AMB units only. Mix 1 goes through a balancing buffer stage which drives the mix signal to the Main Output 1 connector. A second buffer on mix 1 is provided, called Bus Output 1, which includes relay isolation between the buffer and the output connector. Mix 2 has an identical output structure with a Main Output 2

and a Bus Output 2. Bus output relays are under processor control.

### COMMUNICATION

There are two primary means of communications with a mixer. The first is direct RS232/422 via 25-pin female D Shell serial port connector. When direct communication with the mixer is established via the serial port the mixer becomes system interface for itself and any components that may be connected to the Crown Bus port of the unit. There are some restrictions on the use of a mixer as interface for other components, however. A mixer can serve as interface only for non-U-Code products, it supports only one loop, and does not support loop communication if a Drone or IQ-INT II is connected in the loop. Mixers are also limited in the number of components they can serve as interface for. The SMX is limited to as few as 20 components when operating in automatic mode. In any case, you may use a mixer as interface for itself.

The Crown Bus port is the other means of communication with the unit. The Crown Bus port is a four pin barrier block. The Crown Bus is a serial data loop implemented as a simple two-wire current loop. If the serial port on the mixer is not used, another device must be used as system interface with the mixer connected into a Crown Bus loop from that interface. Components which can serve as system interface include the IQ-INT II, IQ-PSI, Drone, or another mixer.

On the SMX mixer, the serial port may be used for an alternative form of communication called the Crown Local Net (CLN). This is a special configuration that involves interconnection of serial ports for the sharing of data when units are stacked. It should only be used when system wide duck priority structure or system wide gate count functions are required. When a CLN is used the SMX may not be used as interface.

### CONTROLS

Controls on each mixer include input controls and communication settings. Input controls include the input gain trim adjust pots and M/L/P switches at each input. Refer to the Audio Path section.

Communication related settings are found at the side of the unit. See Figure 6. These include an eight segment address switch, a six segment switch for baud and parity setup, and a slide switch for selecting RS232 or RS422. Regardless of whether the serial port is used, the unit must have a valid address for commu-

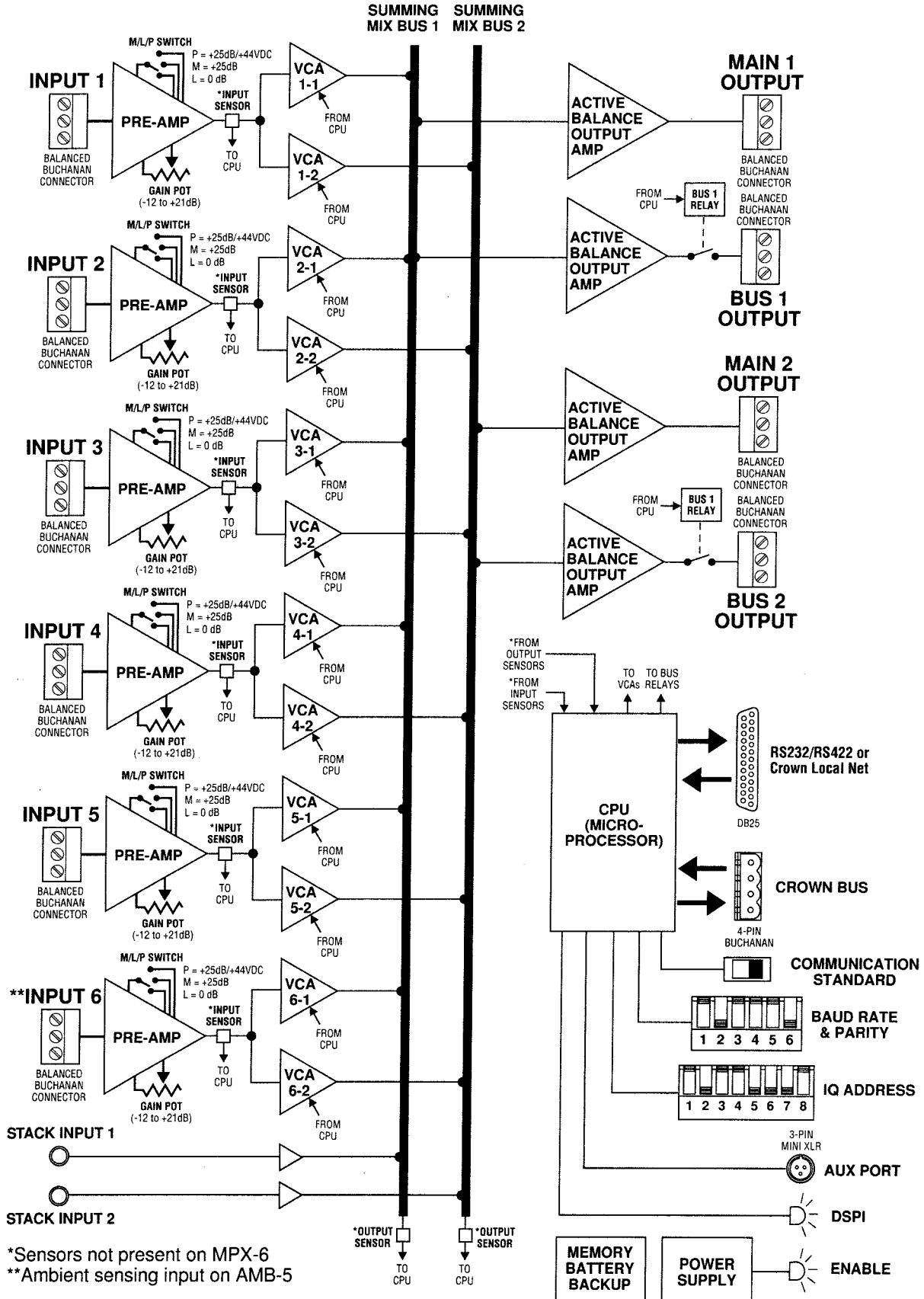


Figure 5. General IQ Mixer Block Diagram

# Theory

nication to take place. A valid address is any address from 1 to 250 and is set in binary with the address switch. Also note that no two mixers of the same model may have the same address if they are on the same Crown Bus loop. Any time the serial port is used the baud, parity, and RS232/422 switches must be configured. Normally parity is off. Baud rates as high as 19,200 are supported by each mixer. The RS232/422 switch should be set to the appropriate position based on the type of computer and cable used.

## INDICATORS

An Enable indicator on the front panel of each mixer shows that the unit is powered up. A Date Signal Presence Indicator (DSPi) light on the front panel of each mixer shows that data is being recieved by the unit. This light may also be forced on from software for diagnostic purposes.

## AUXILIARY PORT

Each mixer is equipped with a TB-3M (mini-XLR) style

three pin port known as the Aux Port. This port is used to provide a low voltage control signal for manipulation of an external device. Another pin is used for sensing a control voltage. Software is capable of sensing the status of this input and taking some type of action. Pin 3 is the output pin, pin 2 is the sense pin, and pin 1 is the ground reference pin.

## POWER SUPPLIES

Mixer power supplies are conventional with a transformer, bridge rectifiers, filters, and regulators. Voltages produced and used by the mixers include  $\pm 22$  VDC unregulated, and  $\pm 15$  VDC,  $\pm 5$  VDC, and  $+44$  VDC regulated. The  $+44$  VDC is used for phantom power, the  $\pm 15$  VDC is used for the audio components, and the  $\pm 5$  VDC supplies are used for the processor and logic components.

A rechargeable battery is used for memory backup in the event of a power loss. Once charged, the battery maintains memory for at least 60 days.

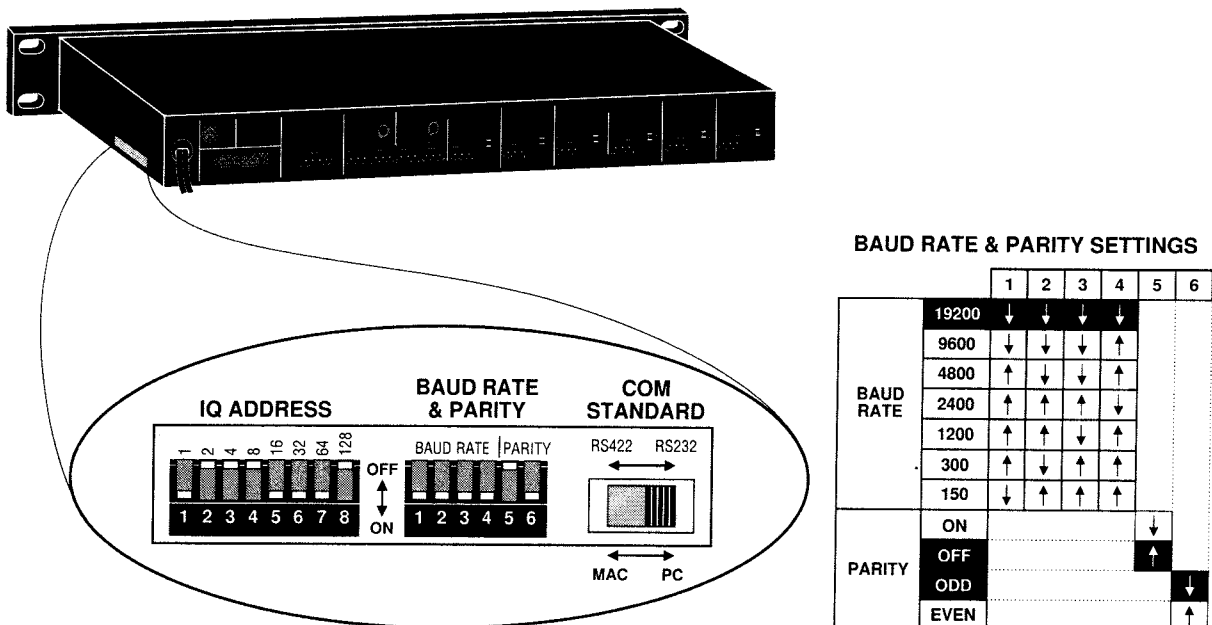


Figure 6. Mixer Communication Switches and Setup

## Electrical Checkout Procedures

### GENERAL INFORMATION

The following test procedures are to be used to verify operation of IQ Mixers. DO NOT connect a load or inject a signal unless directed to do so by the procedure. These tests are meant for verification and calibration of the mixer. They may also be very helpful in troubleshooting. For best results perform all tests in order. All tests assume that AC power is from a regulated 120 VAC source.

### TEST EQUIPMENT REQUIRED

1. Digital multimeter.
2. Low distortion signal generator capable of +20 dBu.
3. Peak reading RMS calibrated ACVM capable of measuring +30 dBu (25 VAC) to -90 dBu (25  $\mu$ VAC).
4. 20 Hz to 20 kHz bandpass filter for ACVM.
5. Distortion Analyzer.
6. Oscilloscope
7. Known working Crown IQ System interface (IQ-INT II recommended).
8. IQ-MSD Turbo 1.3 (or higher) software.
9. PC that meets the requirements for the software used. RS232 and RS422 ports are required, 16550 UART is required for each port used.

When testing audio, the oscilloscope should always be used to look for any anomalies such as oscillations or clipping.

### STANDARD INITIAL CONDITIONS

1. Set all gain trim adjustment pots to 0 dB.
2. Set all M/L/P switches to Line position.
3. Setup unit for address 1, baud to 19,200, parity off/even, RS422.

### TEST 1: POWER SUPPLY

Measure DC voltage at J12 with reference lead at J12 Pin 2:

+Audio at J12 Pin 1: +15.5 VDC  $\pm$ 1 VDC.

-Audio at J12 Pin 3: -15.5 VDC  $\pm$ 1 VDC.

Phantom at J12 Pin 4: +45 VDC  $\pm$ 2 VDC.

At power up these voltages should rise slowly and settle after approximately five seconds.

### TEST 2: COMMUNICATION

**NOTE:** Any time any test calls for changing a communication setting the unit must be powered off and must remain off for at least 30 seconds for the changes to take effect.

**RS232/422 Test:** Set unit for RS422. Check for mixer detection using an RS422 serial port. Set unit for RS232. Check for mixer detection using an RS232 serial port.

**Baud Test:** Check for mixer detection at 2400 baud. Check for mixer detection at 9600 baud. Check for mixer detection at 19,200 baud.

**Address Test:** Check for mixer detection at address 11111010 (250). Check for mixer detection at address 00000101 (5). Set address at 00000001 (1) and verify detection.

**Parity:** With parity on, measure U97 pin 35 at 0V, with parity off measure +5V. With parity set to odd, measure U97 pin 39 at 0V, with parity set to even measure +5V.

### TEST 3: DSPI

Switch DSPI light on and off with software and verify proper response at front panel. (Go to the F10 Control Panel screen in software while checking DSPI functions)

### TEST 4: AUX PORT

Turn Aux Output off from software. Output at pin 3 (pin 1 reference) should measure 0V and 0 ma open or shorted. Turn Aux Output on from software. Output at pin 3 (pin 1 reference) should measure 16 to 18.7 ma when shorted or 8.7 to 10 VDC when open. While monitoring in software short aux port pins 2 and 1 and observe aux input reads off. While monitoring in software provide a logic high to pin 2 and observe aux input reads on. This may be done by shorting pins 2 and 3 with the aux output switched on from software. When complete set the aux output to off.

### TEST 5: PREAMP STAGE

**Input 1:** Measure at device A11 pin 1, reference ground. Select Mic at the M/L/P switch. Set gain trim full CCW. Using an unbalanced source at the non-inverting input inject a 1 kHz sine wave at -40 dBu (7.75 mV). Measure 14 dB gain  $\pm$ 1 dB (34.6 to 43.6 mV). Adjust to center for 29 dB gain  $\pm$ 2 dB (174 to 275 mV). Adjust to full CW for 48 dB gain  $\pm$ 2 dB (1.55 to 2.45V). Switch polarity of the input (inverting input) and verify polarity inversion. Set M/L/P switch to Line position and measure 26 dB  $\pm$ 1 dB attenuation relative to Mic position (77.5 to 123 mV). Remove signal source. Set M/L/P switch to Phantom and measure +44 VDC at the non-inverting and inverting input connector pins relative to the center (ground) pin. When complete set the M/L/P switch back to Line.

## Electrical Checkout Procedures

**Input 2:** Repeat the test performed for Input 1 measuring A11 pin 7.

**Input 3:** Repeat the test performed for Input 1 measuring A31 pin 1.

**Input 4:** Repeat the test performed for Input 1 measuring A31 pin 7.

**Input 5:** Repeat the test performed for Input 1 measuring A51 pin 1.

**Input 6:** Repeat the test performed for Input 1 measuring A51 pin 7.

### TEST 6: VCA CALIBRATION

$V_{ref}$ : Adjust VR81 for 0.5V across R813.

**Preamp Setup:** Inject a 1 kHz sine wave and adjust each input for  $-5$  dBu (436 mV) at each preamp output (A11 pin 1 through A51 pin 7 as in Test 5).

**Load Setup:** Connect a 600 ohm load from the non-inverting output to ground on both Main Outputs. Set gain of each VCA (via software) to  $-100$  dB.

**DAC Calibration at  $+25$  dB Gain:** Set the VCA gain of input 1 to output 1 at  $+25$  dB via software. Inject a signal at input 1. Measure output 1 (unbalanced). Adjust VR91 for  $+20$  dBu (7.75 V) output.

**DAC Calibration at  $-25$  dB Gain:** Set the VCA gain of input 1 to output 1 to  $-25$  dB via software. Measure output 1 (unbalanced). Adjust VR81 for  $-30$  dBu (24.5 mV) output. Recheck at  $+25$  dB software gain and repeat adjustments as necessary until no further adjustment is needed.

### TEST 7: THROUGH GAIN

This test is a followup of Test 6 and assumes no changes to hardware gain structure or signal source level have been made since completion of Test 6. Connect an unbalanced 600 ohm load to each channel as in Test 6. Check each VCA at the appropriate output, one VCA at a time, for an output level of  $+20$  dBu  $\pm 1$  dB (6.91 to 8.70 V) with VCA gain at  $+25$  dB as set via software. If any VCA check fails reperform Tests 5 and 6.

### TEST 8: STACK INPUTS

Connect unbalanced 600 ohm loads on Main Outputs as in Step 6. Inject  $+20$  dBu on each Stack Input and measure (unbalanced)  $19.4$  dBu  $\pm 0.5$  dB (6.83 to 7.66 V) at the output. The loss is due to loading.

### TEST 9: BUS OUTPUTS

Inject a 1 kHz sine wave at any input and adjust gain for  $+20$  dBu (7.75 V) output at each Bus Output. Verify relay operation by switching the relays from software. Verify 0.15% THD or less at each output.

### TEST 10: THD

Set all VCAs to  $-100$  dB gain via software. Setup signal generator for 5 kHz.

**Input 1/Output 1 VCA:** Set software gain to 0 dB and adjust signal generator source for  $+4$  dBu (1.23 V) unbalanced at mixer output. Adjust VR12 (THD Trim) for less than 0.05% THD. Increase source level for  $+14$  dBu (3.88 V) output and measure less than 0.15% THD.

**Input 2/Output 1 VCA:** Repeat check adjusting VR22 as needed.

**Input 3/Output 1 VCA:** Repeat check adjusting VR32 as needed.

**Input 4/Output 1 VCA:** Repeat check adjusting VR42 as needed.

**Input 5/Output 1 VCA:** Repeat check adjusting VR52 as needed.

**Input 6/Output 1 VCA:** Repeat check adjusting VR62 as needed.

**Input 1/Output 2 VCA:** Repeat check adjusting VR13 as needed.

**Input 2/Output 2 VCA:** Repeat check adjusting VR23 as needed.

**Input 3/Output 2 VCA:** Repeat check adjusting VR33 as needed.

**Input 4/Output 2 VCA:** Repeat check adjusting VR43 as needed.

**Input 5/Output 2 VCA:** Repeat check adjusting VR53 as needed.

**Input 6/Output 2 VCA:** Repeat check adjusting VR63 as needed.

### TEST 11: LEVEL DETECTOR OFFSET

**Note:** This test is only applicable to the SMX and AMB mixers.

**Test:** With no input signals applied and all VCAs set to  $-100$  dB via software each level detector buffer output should read 0 mV ( $+1.0$  mV maximum). If necessary adjust the appropriate pot to obtain 0 mV or minimum positive reading. The chart below shows the level detector, the measurement point, and the applicable adjustment pot.

<u>Detector:</u>	<u>Measure:</u>	<u>Adjust:</u>
Input 1 .....	A15 pin 1 .....	VR14
Input 2 .....	A15 pin 7 .....	VR24
Input 3 .....	A35 pin 1 .....	VR34
Input 4 .....	A35 pin 7 .....	VR44
Input 5 .....	A55 pin 1 .....	VR54
Input 6 .....	A55 pin 7 .....	VR64
Output 1 .....	A705 pin 1 .....	VR71
Output 2 .....	A705 pin 7 .....	VR72

## Electrical Checkout Procedures

### TEST 12: LEVEL DETECTOR RESPONSE

**Note:** This test only applies to the SMX and AMB.

**Test:** Measurements are taken at each detector as in Test 11. Suddenly inject a 1 kHz sine wave which produces +20 dBu (7.75 V) at the applicable output. The detector output should reach 90% of its maximum value within 5 ms and drop to 10% of its maximum value in approximately 280 ms when the signal is suddenly removed.

### TEST 13: LEVEL SENSE CALIBRATION

**Note:** This test is only applicable to the SMX and AMB mixers.

**Test:** Inject a 1 kHz sine wave at input 1 while measuring A11 pin 1 and while monitoring the software bar graph screen on the PC. Adjust signal level for -30 dBu (24.5 mV) at A11 pin 1. Adjust VR92 as necessary for proper display on screen (bar goes to -30 dB). Adjust signal level for +20 dBu (7.75 V) at A11 pin 1. Adjust VR93 as necessary for proper display on screen (bar goes to +20 dB). Recheck at -30 dBu and repeat adjustments as needed until no further adjustment is necessary. Adjust for 0 dBu (775 mV) at A11 pin 1 and, if necessary, adjust VR92 for a 0 dB bar graph reading.

### TEST 14: COMMON MODE REJECTION

This test is performed for each input, one at a time, with signal routed to Main Output 1 (either output may be used). Set input to Line with gain trim adjust at 0 dB and VCA gain at 0 dB. Connect signal generator (+) to input (+) and generator (-) to input (-) and input ground. Set signal generator for +20 dBu (7.75 V) mixer output at 60 Hz. Making no other changes, connect signal generator (+) to mixer input (+ and -), connect generator (-) to mixer input ground. Measure less than -25 dBu (43.6 mV) at the mixer output.

### TEST 15: FREQUENCY RESPONSE

Place a 600 ohm unbalanced load on Main Output 1. Set input 1 gain trim to maximum. Set VCA gain (input 1/output1) to 0 dB. Set generator to produce a 1 kHz sine wave at 0 dBu (775 mV) at Main Output 1. Sweep the generator from 20 Hz to 20 kHz and observe output level remains the same +0/-0.8 dB (707 to 775 mV). Check each input routed to Main Output 1. Check each Stack Input. Using any input and applicable VCA move the load to the other Main Output and each of the Bus Outputs and repeat the sweep test to check output response.

### TEST 16: NOISE

**Noise:** Place a 20 Hz to 20 kHz bandpass filter on the input to the ACVM. With all VCAs at -100 dB and no signals injected, measure less than -86 dBu (38.8  $\mu$ V) unbalanced at the mixer output.

**EIN Noise:** Perform this test for each input, one at a time. Inputs not under test should be set for Line with gain trim adjust at 0 dB and VCA gain at -100 dB. Only one output needs to be measured. Set input under test to Mic with gain trim adjusted to maximum and VCA gain at 0 dB. Using a 300 ohm balanced termination, terminate the input under test. Measure output noise. EIN Noise equals measured noise minus path gain (46 dB). EIN Noise should be less than -123.5 dBu (0.52  $\mu$ V) for each input.

### TEST 17: BATTERY BACKUP

Configure the mixer for a random gain setup with various VCA settings and various parameter values. Unplug the mixer from the AC mains for at least 30 seconds. Plug the unit back in and restore communication to the unit. Verify that settings are retained in memory by performing a Roll Call or Upload.

### TEST 18: CROWN BUS LOOP COMMUNICATION

Use another product (such as an IQ-INT II) as system interface and connect the mixer as a component on a Crown Bus loop. Perform a Roll Call and verify detection of the mixer. Operate the DSPI indicator and check at least one VCA to verify communication. Remove the Crown Bus connection and check short circuit Crown Bus output current at 12 to 20 ma.

### TEST 19: BURN IN

Set VCAs input 1/output 1 and input 2/output 2 at 0 dB and set DSPI to on. Leave the unit running at least 8 hours then interrupt power. Set inputs 1 and 2 for Line and gain trim pot to 0 dB. Noise at the output should be less than -86 dB unbalanced. Verify clean sine wave output at high and low levels for each input/output combination.

### POST TESTING

Factory recommended default settings are as follows: ASA off and automatic features "flushed" (use ^F from within sub-block screens) in SMX and AMB units. All VCAs set to off (-100 dB). DSPI, Aux Output, and Bus relays off. On the hardware set all inputs to Line and 0 dB gain trim. Set communication for RS422, baud at 19,200, parity off/even, and address 00000001 (1).

## MPX-6 Chassis and Miscellaneous Parts List

<u>IQPN</u>	<u>Description</u>	<u>Qty</u>	<u>IQPN</u>	<u>Description</u>	<u>Qty</u>
060120	CABLE LINE CORD W/GND 6 FT	1	210000	CON PIN RCA CHASSIS MNT	2
060812	CABLE 8-PIN DIP 12 IN.	1	210204	CON HDR .156 4 PIN STRAIGHT	2
061412	CABLE 14 PIN DIP 12" RIB BOTH	1	210302	CON HDR JPR 2-PIN .1	2
200007	TERMINAL PC MNT .250 SPADE	2	212000	CON JPR 2-PIN .1	2
200010	CON 3 PIN AUX MALE CHAS.	1	250030	FUSE 0.3A (F801)	1
200025	CON DB25 FEMALE RT ANGLE	1	260001	CLIPS FUSE PC MNT 3AG	2
200025B	FEMALE SCREW LOCKS	2	260002	STRAIN RELIEF 3 WIRE 18 GA	1
200035	CON 3-TERM RT ANGLE PC M	10	260005	STRAIN RELIEF, WIRE TIE 1 S	1
200036	CON 3-TERM FEMALE CONNec	10	260050	FOOT BLACK BUMP-ON 0.5 SQ 0	3
200040	CON, 4-TERM BUCHANAN	1	290220	HEAT SINK TO-220 PC MNT TABS	3
200041	CON 4-TERM FEMALE CONNec	1	601064	SM TOP COVER	1
200103	CON .100 3 PIN HOUSING	3	651106	SW DIP 6 POS SPST PIANO K	1
200204	CON .156 4 PIN HOUSING	2	651108	SW DIP 8 POS SPST PIANO K	1
201008	SOCKET 8 PIN LP DIP	6	652200	SW SLIDE PCB RA DPDT SLIDE	1
201014	SOCKET 14 PIN LP DIP	7	652300	SW MINIATURE SLIDE 3P3T	6
201040	SOCKET 40 PIN LP DIP	3	261423	SCREW 4-24 X 3/8 PAN HD PH BLK	10

## SMX-6 Chassis and Miscellaneous Parts List

<u>IQPN</u>	<u>Description</u>	<u>Qty</u>	<u>IQPN</u>	<u>Description</u>	<u>Qty</u>
060120	CABLE LINE CORD W/GND 6 FT	1	210302	CON HDR JPR 2-PIN .1	2
060812	CABLE 8-PIN DIP 12 IN.	1	212000	CON JPR 2-PIN .1	2
061412	CABLE 14 PIN DIP 12" RIB BOTH	1	250030	FUSE 0.3A (F801)	1
200007	TERMINAL PC MNT .250 SPADE	2	260001	CLIPS FUSE PC MNT 3AG	2
200010	CON 3 PIN AUX MALE CHAS.	1	260002	STRAIN RELIEF 3 WIRE 18 GA	1
200025	CON DB25 FEMALE RT ANGLE	1	260005	STRAIN RELIEF, WIRE TIE 1 S	1
200025B	FEMALE SCREW LOCKS	2	260050	FOOT BLACK BUMP-ON 0.5 SQ 0	3
200035	CON 3-TERM RT ANGLE PC M	10	290220	HEAT SINK TO-220 PC MNT TABS	3
200036	CON 3-TERM FEMALE CONNEC	10	601061	SM CHASSIS BOTTOM SMX	1
200040	CON, 4-TERM BUCHANAN	1	601062	SM FRONT PANEL SMX	1
200041	CON 4-TERM FEMALE CONNEC	1	601063	SM BACK PANEL SMX	1
200103	CON .100 3 PIN HOUSING	3	601064	SM TOP COVER	1
200204	CON .156 4 PIN HOUSING	2	651106	SW DIP 6 POS SPST PIANO K	1
201008	SOCKET 8 PIN LP DIP	6	651108	SW DIP 8 POS SPST PIANO K	1
201014	SOCKET 14 PIN LP DIP	7	652200	SW SLIDE PCB RA DPDT SLIDE	1
201040	SOCKET 40 PIN LP DIP	3	652300	SW MINIATURE SLIDE 3P3T	6
210000	CON PIN RCA CHASSIS MNT	2	261423	SCREW 4-24 X 3/8 PAN HD PH BLK	10
210204	CON HDR .156 4 PIN STRAIGHT	2			



## AMB-5 Chassis and Miscellaneous Parts List

<u>IQPN</u>	<u>Description</u>	<u>Qty</u>	<u>IQPN</u>	<u>Description</u>	<u>Qty</u>
060120	CABLE LINE CORD W/GND 6 FT	1	210302	CON HDR JPR 2-PIN .1	2
060812	CABLE 8-PIN DIP 12 IN.	1	212000	CON JPR 2-PIN .1	2
061412	CABLE 14 PIN DIP 12" RIB BOTH	1	250030	FUSE 0.3A (F801)	1
200007	TERMINAL PC MNT .250 SPADE	2	260001	CLIPS FUSE PC MNT 3AG	2
200010	CON 3 PIN AUX MALE CHAS.	1	260005	STRAIN RELIEF, WIRE TIE 1 S	1
200025	CON DB25 FEMALE RT ANGLE	1	260050	FOOT BLACK BUMP-ON 0.5 SQ 0	3
200025B	FEMALE SCREW LOCKS	2	290220	HEAT SINK TO-220 PC MNT TABS	3
200035	CON 3-TERM RT ANGLE PC M	10	602076	SM FRONT PANEL AMB	1
200036	CON 3-TERM FEMALE CONNec	10	602077	SM BACK PANEL AMB	1
200040	CON, 4-TERM BUCHANAN	1	601064	SM TOP COVER	1
200041	CON 4-TERM FEMALE CONNec	1	651106	SW DIP 6 POS SPST PIANO K	1
200103	CON .100 3 PIN HOUSING	3	651108	SW DIP 8 POS SPST PIANO K	1
200204	CON .156 4 PIN HOUSING	2	652200	SW SLIDE PCB RA DPDT SLIDE	1
201008	SOCKET 8 PIN LP DIP	6	652300	SW MINIATURE SLIDE 3P3T	6
201014	SOCKET 14 PIN LP DIP	7	722434	TRANSF POWER PCB 24 VA24	1
201040	SOCKET 40 PIN LP DIP	3	260002	STRAIN RELIEF 3 WIRE 18 GA	1
210000	CON PIN RCA CHASSIS MNT	2	261423	SCREW 4-24 X 3/8 PAN HD PH BLK	10
210204	CON HDR .156 4 PIN STRAIGHT	2			

## MPX Input Module 463001C Parts List

Desig.	IQPN	Description	Desig.	IQPN	Description
A11	323078	IC Dual Opamp MC33078	D403	224004	Diode 1N4004 400V 1A
A12	323079	IC Quad Opamp MC33079	D404	224004	Diode 1N4004 400V 1A
A13	352150	IC VCA 2150A	D501	224004	Diode 1N4004 400V 1A
A14	352150	IC VCA 2150A	D502	224004	Diode 1N4004 400V 1A
A22	323079	IC Quad Opamp MC33079	D503	224004	Diode 1N4004 400V 1A
A23	352150	IC VCA 2150A	D504	224004	Diode 1N4004 400V 1A
A24	352150	IC VCA 2150A	D601	224004	Diode 1N4004 400V 1A
A31	323078	IC Dual Opamp MC33078	D602	224004	Diode 1N4004 400V 1A
A32	323079	IC Quad Opamp MC33079	D603	224004	Diode 1N4004 400V 1A
A33	352150	IC VCA 2150A	D604	224004	Diode 1N4004 400V 1A
A34	352150	IC VCA 2150A	D813	224733	Diode 1N4733A Zener 5.1V
A42	323079	IC Quad Opamp MC33079	D814	224148	Diode 1N4148 Signal
A43	352150	IC VCA 2150A			
A44	352150	IC VCA 2150A	L11	400271	Choke 270μH
A51	323078	IC Dual Opamp MC33078	L12	400271	Choke 270μH
A52	323079	IC Quad Opamp MC33079	L21	400271	Choke 270μH
A53	352150	IC VCA 2150A	L22	400271	Choke 270μH
A54	352150	IC VCA 2150A	L31	400271	Choke 270μH
A62	323079	IC Quad Opamp MC33079	L32	400271	Choke 270μH
A63	352150	IC VCA 2150A	L41	400271	Choke 270μH
A64	352150	IC VCA 2150A	L42	400271	Choke 270μH
A701	323078	IC Dual Opamp MC33078	L51	400271	Choke 270μH
			L52	400271	Choke 270μH
Q11	800970	PNP 2SA970 TO92	L61	400271	Choke 270μH
Q12	800970	PNP 2SA970 TO92	L62	400271	Choke 270μH
Q21	800970	PNP 2SA970 TO92			
Q22	800970	PNP 2SA970 TO92	FB11	400001	Ferrite Bead With Leads
Q31	800970	PNP 2SA970 TO92	FB12	400001	Ferrite Bead With Leads
Q32	800970	PNP 2SA970 TO92	FB13	400000	Ferrite Bead No Leads
Q41	800970	PNP 2SA970 TO92	FB14	400000	Ferrite Bead No Leads
Q42	800970	PNP 2SA970 TO92	FB21	400001	Ferrite Bead With Leads
Q51	800970	PNP 2SA970 TO92	FB22	400001	Ferrite Bead With Leads
Q52	800970	PNP 2SA970 TO92	FB23	400000	Ferrite Bead No Leads
Q61	800970	PNP 2SA970 TO92	FB24	400000	Ferrite Bead No Leads
Q62	800970	PNP 2SA970 TO92	FB31	400001	Ferrite Bead With Leads
			FB32	400001	Ferrite Bead With Leads
D101	224004	Diode 1N4004 400V 1A	FB33	400000	Ferrite Bead No Leads
D102	224004	Diode 1N4004 400V 1A	FB34	400000	Ferrite Bead No Leads
D103	224004	Diode 1N4004 400V 1A	FB41	400001	Ferrite Bead With Leads
D104	224004	Diode 1N4004 400V 1A	FB42	400001	Ferrite Bead With Leads
D201	224004	Diode 1N4004 400V 1A	FB43	400000	Ferrite Bead No Leads
D202	224004	Diode 1N4004 400V 1A	FB44	400000	Ferrite Bead No Leads
D203	224004	Diode 1N4004 400V 1A	FB51	400001	Ferrite Bead With Leads
D204	224004	Diode 1N4004 400V 1A	FB52	400001	Ferrite Bead With Leads
D301	224004	Diode 1N4004 400V 1A	FB53	400000	Ferrite Bead No Leads
D302	224004	Diode 1N4004 400V 1A	FB54	400000	Ferrite Bead No Leads
D303	224004	Diode 1N4004 400V 1A	FB61	400001	Ferrite Bead With Leads
D304	224004	Diode 1N4004 400V 1A	FB62	400001	Ferrite Bead With Leads
D401	224004	Diode 1N4004 400V 1A	FB63	400000	Ferrite Bead No Leads
D402	224004	Diode 1N4004 400V 1A	FB64	400000	Ferrite Bead No Leads

## MPX Input Module 463001C Parts List

<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>	<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>
C101	100680	Cap 68pF 50V 10% Ceramic	C304	100152	Cap 1500pF 50V 10% Ceramic
C102	100680	Cap 68pF 50V 10% Ceramic	C305	124470	Cap 47μF 63V Electrolytic
C103	100152	Cap 1500pF 50V 10% Ceramic	C306	124470	Cap 47μF 63V Electrolytic
C104	100152	Cap 1500pF 50V 10% Ceramic	C307	100472	Cap .0047μF 50V 10% Ceramic
C105	124470	Cap 47μF 63V Electrolytic	C308	100472	Cap .0047μF 50V 10% Ceramic
C106	124470	Cap 47μF 63V Electrolytic	C309	124470	Cap 47μF 63V Electrolytic
C107	100472	Cap .0047μF 50V 10% Ceramic	C310	124470	Cap 47μF 63V Electrolytic
C108	100472	Cap .0047μF 50V 10% Ceramic	C311	100221	Cap 220pF 50V 10% Ceramic
C109	124470	Cap 47μF 63V Electrolytic	C312	100221	Cap 220pF 50V 10% Ceramic
C110	124470	Cap 47μF 63V Electrolytic	C313	100470	Cap 47pF 50V 10% Ceramic
C111	100221	Cap 220pF 50V 10% Ceramic	C314	100470	Cap 47pF 50V 10% Ceramic
C112	100221	Cap 220pF 50V 10% Ceramic	C315	120471	Cap 470μF 6.3V Electrolytic
C113	100470	Cap 47pF 50V 10% Ceramic	C317	122100	Cap 10μF 35V Electrolytic
C114	100470	Cap 47pF 50V 10% Ceramic	C316	150104	Cap .1μF 50V 5% Film
C115	120471	Cap 470μF 6.3V Electrolytic	C318	100470	Cap 47pF 50V 10% Ceramic
C116	150104	Cap .1μF 50V 5% Film	C319	150104	Cap .1μF 50V 5% Film
C117	122100	Cap 10μF 35V Electrolytic	C320	122100	Cap 10μF 35V Electrolytic
C118	100470	Cap 47pF 50V 10% Ceramic	C321	100470	Cap 47pF 50V 10% Ceramic
C119	150104	Cap .1μF 50V 5% Film	C322	100103	Cap .01μF 50V 10% Ceramic
C120	122100	Cap 10μF 35V Electrolytic	C323	100103	Cap .01μF 50V 10% Ceramic
C121	100470	Cap 47pF 50V 10% Ceramic	C324	100103	Cap .01μF 50V 10% Ceramic
C122	100103	Cap .01μF 50V 10% Ceramic	C325	100103	Cap .01μF 50V 10% Ceramic
C123	100103	Cap .01μF 50V 10% Ceramic	C401	100680	Cap 68pF 50V 10% Ceramic
C124	100103	Cap .01μF 50V 10% Ceramic	C402	100680	Cap 68pF 50V 10% Ceramic
C125	100103	Cap .01μF 50V 10% Ceramic	C403	100152	Cap 1500pF 50V 10% Ceramic
C201	100680	Cap 68pF 50V 10% Ceramic	C404	100152	Cap 1500pF 50V 10% Ceramic
C202	100680	Cap 68pF 50V 10% Ceramic	C405	124470	Cap 47μF 63V Electrolytic
C203	100152	Cap 1500pF 50V 10% Ceramic	C406	124470	Cap 47μF 63V Electrolytic
C204	100152	Cap 1500pF 50V 10% Ceramic	C407	100472	Cap .0047μF 50V 10% Ceramic
C205	124470	Cap 47μF 63V Electrolytic	C408	100472	Cap .0047μF 50V 10% Ceramic
C206	124470	Cap 47μF 63V Electrolytic	C409	124470	Cap 47μF 63V Electrolytic
C207	100472	Cap .0047μF 50V 10% Ceramic	C410	124470	Cap 47μF 63V Electrolytic
C208	100472	Cap .0047μF 50V 10% Ceramic	C411	100221	Cap 220pF 50V 10% Ceramic
C209	124470	Cap 47μF 63V Electrolytic	C412	100221	Cap 220pF 50V 10% Ceramic
C210	124470	Cap 47μF 63V Electrolytic	C413	100470	Cap 47pF 50V 10% Ceramic
C211	100221	Cap 220pF 50V 10% Ceramic	C414	100470	Cap 47pF 50V 10% Ceramic
C212	100221	Cap 220pF 50V 10% Ceramic	C415	120471	Cap 470μF 6.3V Electrolytic
C213	100470	Cap 47pF 50V 10% Ceramic	C416	150104	Cap .1μF 50V 5% Film
C214	100470	Cap 47pF 50V 10% Ceramic	C417	122100	Cap 10μF 35V Electrolytic
C215	120471	Cap 470μF 6.3V Electrolytic	C418	100470	Cap 47pF 50V 10% Ceramic
C216	150104	Cap .1μF 50V 5% Film	C419	150104	Cap .1μF 50V 5% Film
C217	122100	Cap 10μF 35V Electrolytic	C420	122100	Cap 10μF 35V Electrolytic
C218	100470	Cap 47pF 50V 10% Ceramic	C421	100470	Cap 47pF 50V 10% Ceramic
C219	150104	Cap .1μF 50V 5% Film	C424	100103	Cap .01μF 50V 10% Ceramic
C220	122100	Cap 10μF 35V Electrolytic	C425	100103	Cap .01μF 50V 10% Ceramic
C221	100470	Cap 47pF 50V 10% Ceramic	C501	100680	Cap 68pF 50V 10% Ceramic
C224	100103	Cap .01μF 50V 10% Ceramic	C502	100680	Cap 68pF 50V 10% Ceramic
C225	100103	Cap .01μF 50V 10% Ceramic	C503	100152	Cap 1500pF 50V 10% Ceramic
C301	100680	Cap 68pF 50V 10% Ceramic	C504	100152	Cap 1500pF 50V 10% Ceramic
C302	100680	Cap 68pF 50V 10% Ceramic	C505	124470	Cap 47μF 63V Electrolytic
C303	100152	Cap 1500pF 50V 10% Ceramic	C506	124470	Cap 47μF 63V Electrolytic

## MPX Input Module 463001C Parts List

<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>	<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>
C507	100472	Cap .0047μF 50V 10% Ceramic	C748	123331	Cap 330μF 50V Electrolytic
C508	100472	Cap .0047μF 50V 10% Ceramic	C823	122101	Cap 100μF 35V Electrolytic
C509	124470	Cap 47μF 63V Electrolytic			
C510	124470	Cap 47μF 63V Electrolytic	R101	502003	200 Kohm .25W 1% MF
C511	100221	Cap 220pF 50V 10% Ceramic	R102	502003	200 Kohm .25W 1% MF
C512	100221	Cap 220pF 50V 10% Ceramic	R103	501002	10 Kohm .25W 1% MF
C513	100470	Cap 47pF 50V 10% Ceramic	R104	501002	10 Kohm .25W 1% MF
C514	100470	Cap 47pF 50V 10% Ceramic	R105	506810	681 ohm .25W 1% MF
C515	120471	Cap 470μF 6.3V Electrolytic	R106	506810	681 ohm .25W 1% MF
C516	150104	Cap .1μF 50V 5% Film	R107	506811	6.81 Kohm .25W 1% MF
C517	122100	Cap 10μF 35V Electrolytic	R108	506811	6.81 Kohm .25W 1% MF
C518	100470	Cap 47pF 50V 10% Ceramic	R109	503011	3.01 Kohm .25W 1% MF
C519	150104	Cap .1μF 50V 5% Film	R110	503011	3.01 Kohm .25W 1% MF
C520	122100	Cap 10μF 35V Electrolytic	R111	501000	100 ohm .25W 1% MF
C521	100470	Cap 47pF 50V 10% Ceramic	R112	501002	10 Kohm .25W 1% MF
C522	100103	Cap .01μF 50V 10% Ceramic	R113	501002	10 Kohm .25W 1% MF
C523	100103	Cap .01μF 50V 10% Ceramic	R118	501002	10 Kohm .25W 1% MF
C524	100103	Cap .01μF 50V 10% Ceramic	R119	501471	1.47 Kohm .25W 1% MF
C525	100103	Cap .01μF 50V 10% Ceramic	R120	504990	499 ohm .25W 1% MF
C601	100680	Cap 68pF 50V 10% Ceramic	R121	502002	20 Kohm .25W 1% MF
C602	100680	Cap 68pF 50V 10% Ceramic	R122	502002	20 Kohm .25W 1% MF
C603	100152	Cap 1500pF 50V 10% Ceramic	R123	502002	20 Kohm .25W 1% MF
C604	100152	Cap 1500pF 50V 10% Ceramic	R124	502003	200 Kohm .25W 1% MF
C605	124470	Cap 47μF 63V Electrolytic	R125	504999	49.9 Kohm .25W 1% MF
C606	124470	Cap 47μF 63V Electrolytic	R126	504991	4.99 Kohm .25W 1% MF
C607	100472	Cap .0047μF 50V 10% Ceramic	R127	501002	10 Kohm .25W 1% MF
C608	100472	Cap .0047μF 50V 10% Ceramic	R128	501471	1.47 Kohm .25W 1% MF
C609	124470	Cap 47μF 63V Electrolytic	R129	504990	499 ohm .25W 1% MF
C610	124470	Cap 47μF 63V Electrolytic	R130	502002	20 Kohm .25W 1% MF
C611	100221	Cap 220pF 50V 10% Ceramic	R131	502002	20 Kohm .25W 1% MF
C612	100221	Cap 220pF 50V 10% Ceramic	R132	502002	20 Kohm .25W 1% MF
C613	100470	Cap 47pF 50V 10% Ceramic	R133	502003	200 Kohm .25W 1% MF
C614	100470	Cap 47pF 50V 10% Ceramic	R134	504999	49.9 Kohm .25W 1% MF
C615	120471	Cap 470μF 6.3V Electrolytic	R135	504991	4.99 Kohm .25W 1% MF
C616	150104	Cap .1μF 50V 5% Film	R201	502003	200 Kohm .25W 1% MF
C617	122100	Cap 10μF 35V Electrolytic	R202	502003	200 Kohm .25W 1% MF
C618	100470	Cap 47pF 50V 10% Ceramic	R203	501002	10 Kohm .25W 1% MF
C619	150104	Cap .1μF 50V 5% Film	R204	501002	10 Kohm .25W 1% MF
C620	122100	Cap 10μF 35V Electrolytic	R205	506810	681 ohm .25W 1% MF
C621	100470	Cap 47pF 50V 10% Ceramic	R206	506810	681 ohm .25W 1% MF
C624	100103	Cap .01μF 50V 10% Ceramic	R207	506811	6.81 Kohm .25W 1% MF
C625	100103	Cap .01μF 50V 10% Ceramic	R208	506811	6.81 Kohm .25W 1% MF
C701	129470	Cap 47μF 25V Electrolytic NP	R209	503011	3.01 Kohm .25W 1% MF
C702	100470	Cap 47pF 50V 10% Ceramic	R210	503011	3.01 Kohm .25W 1% MF
C703	129470	Cap 47μF 25V Electrolytic NP	R211	501000	100 ohm .25W 1% MF
C704	100470	Cap 47pF 50V 10% Ceramic	R212	501002	10 Kohm .25W 1% MF
C705	122109	Cap 1μF 35V Electrolytic	R213	501002	10 Kohm .25W 1% MF
C706	122109	Cap 1μF 35V Electrolytic	R218	501002	10 Kohm .25W 1% MF
C745	100103	Cap .01μF 50V 10% Ceramic	R219	501471	1.47 Kohm .25W 1% MF
C746	100103	Cap .01μF 50V 10% Ceramic	R220	504990	499 ohm .25W 1% MF
C747	100103	Cap .01μF 50V 10% Ceramic	R221	502002	20 Kohm .25W 1% MF

## MPX Input Module 463001C Parts List

<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>	<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>
R222	502002	20 Kohm .25W 1% MF	R407	506811	6.81 Kohm .25W 1% MF
R223	502002	20 Kohm .25W 1% MF	R408	506811	6.81 Kohm .25W 1% MF
R224	502003	200 Kohm .25W 1% MF	R409	503011	3.01 Kohm .25W 1% MF
R225	504999	49.9 Kohm .25W 1% MF	R410	503011	3.01 Kohm .25W 1% MF
R226	504991	4.99 Kohm .25W 1% MF	R411	501000	100 ohm .25W 1% MF
R227	501002	10 Kohm .25W 1% MF	R412	501002	10 Kohm .25W 1% MF
R228	501471	1.47 Kohm .25W 1% MF	R413	501002	10 Kohm .25W 1% MF
R229	504990	499 ohm .25W 1% MF	R418	501002	10 Kohm .25W 1% MF
R230	502002	20 Kohm .25W 1% MF	R419	501471	1.47 Kohm .25W 1% MF
R231	502002	20 Kohm .25W 1% MF	R420	504990	499 ohm .25W 1% MF
R232	502002	20 Kohm .25W 1% MF	R421	502002	20 Kohm .25W 1% MF
R233	502003	200 Kohm .25W 1% MF	R422	502002	20 Kohm .25W 1% MF
R234	504999	49.9 Kohm .25W 1% MF	R423	502002	20 Kohm .25W 1% MF
R235	504991	4.99 Kohm .25W 1% MF	R424	502003	200 Kohm .25W 1% MF
R301	502003	200 Kohm .25W 1% MF	R425	504999	49.9 Kohm .25W 1% MF
R302	502003	200 Kohm .25W 1% MF	R426	504991	4.99 Kohm .25W 1% MF
R303	501002	10 Kohm .25W 1% MF	R427	501002	10 Kohm .25W 1% MF
R304	501002	10 Kohm .25W 1% MF	R428	501471	1.47 Kohm .25W 1% MF
R305	506810	681 ohm .25W 1% MF	R429	504990	499 ohm .25W 1% MF
R306	506810	681 ohm .25W 1% MF	R430	502002	20 Kohm .25W 1% MF
R307	506811	6.81 Kohm .25W 1% MF	R431	502002	20 Kohm .25W 1% MF
R308	506811	6.81 Kohm .25W 1% MF	R432	502002	20 Kohm .25W 1% MF
R309	503011	3.01 Kohm .25W 1% MF	R433	502003	200 Kohm .25W 1% MF
R310	503011	3.01 Kohm .25W 1% MF	R434	504999	49.9 Kohm .25W 1% MF
R311	501000	100 ohm .25W 1% MF	R435	504991	4.99 Kohm .25W 1% MF
R312	501002	10 Kohm .25W 1% MF	R501	502003	200 Kohm .25W 1% MF
R313	501002	10 Kohm .25W 1% MF	R502	502003	200 Kohm .25W 1% MF
R318	501002	10 Kohm .25W 1% MF	R503	501002	10 Kohm .25W 1% MF
R319	501471	1.47 Kohm .25W 1% MF	R504	501002	10 Kohm .25W 1% MF
R320	504990	499 ohm .25W 1% MF	R505	506810	681 ohm .25W 1% MF
R321	502002	20 Kohm .25W 1% MF	R506	506810	681 ohm .25W 1% MF
R322	502002	20 Kohm .25W 1% MF	R507	506811	6.81 Kohm .25W 1% MF
R323	502002	20 Kohm .25W 1% MF	R508	506811	6.81 Kohm .25W 1% MF
R324	502003	200 Kohm .25W 1% MF	R509	503011	3.01 Kohm .25W 1% MF
R325	504999	49.9 Kohm .25W 1% MF	R510	503011	3.01 Kohm .25W 1% MF
R326	504991	4.99 Kohm .25W 1% MF	R511	501000	100 ohm .25W 1% MF
R327	501002	10 Kohm .25W 1% MF	R512	501002	10 Kohm .25W 1% MF
R328	501471	1.47 Kohm .25W 1% MF	R513	501002	10 Kohm .25W 1% MF
R329	504990	499 ohm .25W 1% MF	R518	501002	10 Kohm .25W 1% MF
R330	502002	20 Kohm .25W 1% MF	R519	501471	1.47 Kohm .25W 1% MF
R331	502002	20 Kohm .25W 1% MF	R520	504990	499 ohm .25W 1% MF
R332	502002	20 Kohm .25W 1% MF	R521	502002	20 Kohm .25W 1% MF
R333	502003	200 Kohm .25W 1% MF	R522	502002	20 Kohm .25W 1% MF
R334	504999	49.9 Kohm .25W 1% MF	R523	502002	20 Kohm .25W 1% MF
R335	504991	4.99 Kohm .25W 1% MF	R524	502003	200 Kohm .25W 1% MF
R401	502003	200 Kohm .25W 1% MF	R525	504999	49.9 Kohm .25W 1% MF
R402	502003	200 Kohm .25W 1% MF	R526	504991	4.99 Kohm .25W 1% MF
R403	501002	10 Kohm .25W 1% MF	R527	501002	10 Kohm .25W 1% MF
R404	501002	10 Kohm .25W 1% MF	R528	501471	1.47 Kohm .25W 1% MF
R405	506810	681 ohm .25W 1% MF	R529	504990	499 ohm .25W 1% MF
R406	506810	681 ohm .25W 1% MF	R530	502002	20 Kohm .25W 1% MF

## MPX Input Module 463001C Parts List

<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>	<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>
R531	502002	20 Kohm .25W 1% MF	R746	502002	20 Kohm .25W 1% MF
R532	502002	20 Kohm .25W 1% MF	R811	504021	4.02 Kohm .25W 1% MF
R533	502003	200 Kohm .25W 1% MF	R812	508251	8.25 Kohm .25W 1% MF
R534	504999	49.9 Kohm .25W 1% MF	R813	501001	1 Kohm .25W 1% MF
R535	504991	4.99 Kohm .25W 1% MF			
R601	502003	200 Kohm .25W 1% MF	RN1	511203	20 Kohm 1% 4SIP Network
R602	502003	200 Kohm .25W 1% MF	RN2	511203	20 Kohm 1% 4SIP Network
R603	501002	10 Kohm .25W 1% MF	RN3	511203	20 Kohm 1% 4SIP Network
R604	501002	10 Kohm .25W 1% MF	RN4	511203	20 Kohm 1% 4SIP Network
R605	506810	681 ohm .25W 1% MF	RN5	511203	20 Kohm 1% 4SIP Network
R606	506810	681 ohm .25W 1% MF	RN6	511203	20 Kohm 1% 4SIP Network
R607	506811	6.81 Kohm .25W 1% MF			
R608	506811	6.81 Kohm .25W 1% MF	VR11	583123	10 Kohm Screw Adjust Pot
R609	503011	3.01 Kohm .25W 1% MF	VR12	560104	100 Kohm Trim Pot
R610	503011	3.01 Kohm .25W 1% MF	VR13	560104	100 Kohm Trim Pot
R611	501000	100 ohm .25W 1% MF	VR21	583123	10 Kohm Screw Adjust Pot
R612	501002	10 Kohm .25W 1% MF	VR22	560104	100 Kohm Trim Pot
R613	501002	10 Kohm .25W 1% MF	VR23	560104	100 Kohm Trim Pot
R618	501002	10 Kohm .25W 1% MF	VR31	583123	10 Kohm Screw Adjust Pot
R619	501471	1.47 Kohm .25W 1% MF	VR32	560104	100 Kohm Trim Pot
R620	504990	499 ohm .25W 1% MF	VR33	560104	100 Kohm Trim Pot
R621	502002	20 Kohm .25W 1% MF	VR41	583123	10 Kohm Screw Adjust Pot
R622	502002	20 Kohm .25W 1% MF	VR42	560104	100 Kohm Trim Pot
R623	502002	20 Kohm .25W 1% MF	VR43	560104	100 Kohm Trim Pot
R624	502003	200 Kohm .25W 1% MF	VR51	583123	10 Kohm Screw Adjust Pot
R625	504999	49.9 Kohm .25W 1% MF	VR52	560104	100 Kohm Trim Pot
R626	504991	4.99 Kohm .25W 1% MF	VR53	560104	100 Kohm Trim Pot
R627	501002	10 Kohm .25W 1% MF	VR61	583123	10 Kohm Screw Adjust Pot
R628	501471	1.47 Kohm .25W 1% MF	VR62	560104	100 Kohm Trim Pot
R629	504990	499 ohm .25W 1% MF	VR63	560104	100 Kohm Trim Pot
R630	502002	20 Kohm .25W 1% MF	VR81	560102	1 Kohm Trim Pot
R631	502002	20 Kohm .25W 1% MF			
R632	502002	20 Kohm .25W 1% MF	SW1	652300	Sw DP3T (M/L/P)
R633	502003	200 Kohm .25W 1% MF	SW2	652300	Sw DP3T (M/L/P)
R634	504999	49.9 Kohm .25W 1% MF	SW3	652300	Sw DP3T (M/L/P)
R635	504991	4.99 Kohm .25W 1% MF	SW4	652300	Sw DP3T (M/L/P)
R701	502002	20 Kohm .25W 1% MF	SW5	652300	Sw DP3T (M/L/P)
R702	502002	20 Kohm .25W 1% MF	SW6	652300	Sw DP3T (M/L/P)
R745	502002	20 Kohm .25W 1% MF			

## MPX Output Module 463002C Parts List

<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>	<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>
A91	320074	IC Quad Opamp TL074	D912	220914	Diode 1N914B Signal 4ns
A92	352300	IC Analog Demux SSM2300	D913	220914	Diode 1N914B Signal 4ns
A93	352300	IC Analog Demux SSM2300	D914	224742	Diode 1N4742B Zener 12V
A701	325532	IC Dual Opamp NE5532	D915	225819	Diode 1N5819 Schottky
A702	325532	IC Dual Opamp NE5532	D916	225819	Diode 1N5819 Schottky
A703	325532	IC Dual Opamp NE5532	D917	220914	Diode 1N914B Signal 4ns
A704	325532	IC Dual Opamp NE5532	D918	220914	Diode 1N914B Signal 4ns
A801	370337	IC Regulator -Adjust LM337	D919	220914	Diode 1N914B Signal 4ns
A802	370317	IC Regulator +Adjust LM317	D920	220914	Diode 1N914B Signal 4ns
A803	373405	IC Regulator +5V LM340T-5.0	D921	220914	Diode 1N914B Signal 4ns
U91	350830	IC D/A Converter DAC0830	D922	224733	Diode 1N4733A Zener 5.1V
U93	314702	IC Baud Gen IM4702	D923	224004	Diode 1N4004 400V 1A
U94	300074	IC Dual D Flip-Flop 74HC74A	D924	224740	Diode 1N4740A Zener 10V
U95	300244	IC Tristate Driver 74LS244			
U96	317058	IC Processor 705	LD1	235732	LED Amber Enable
U97	316402	IC UART IM6402	LD2	234413	LED Yellow DSPI
U98	304093	IC Qd NAND Schmitt CD4093			
U99	340007	IC Hex Buffer DM7407	X91	922457	XTAL 2.4576 MHz
U910	343691	IC Quad Line Driver DS3691	X92	923686	XTAL 3.6864 MHz
U911	342632	IC Quad Diff Line Rcvr 26LS32			
U912	334200	IC Opto-Coupler HCPL4200	K1	482024	Relay 2FA 24V PRMA2A24
			K2	482024	Relay 2FA 24V PRMA2A24
Q91	800093	PNP MPSA93 TO92	K3	484424	Relay 2FC 24V LM44E00
Q94	814401	NPN 2N4401 TO92	K4	482024	Relay 2FA 24V PRMA2A24
Q701	814401	NPN 2N4401 TO92			
Q702	814401	NPN 2N4401 TO92	T801	722434	XFMR Power 24VA
Q801	814401	NPN 2N4401 TO92			
Q802	804403	PNP 2N4403 TO92	C91	100101	Cap 100pF 50V 10% Ceramic
Q803	805551	NPN 2N5551 TO92	C92	122100	Cap 10µF 35V Electrolytic
Q804	805551	NPN 2N5551 TO92	C93	121101	Cap 100µF 25V Electrolytic
			C94	100103	Cap .01µF 50V 10% Ceramic
D91	224447	Diode 1N4447 Signal	C95	100103	Cap .01µF 50V 10% Ceramic
D92	224004	Diode 1N4004 400V 1A	C96	100103	Cap .01µF 50V 10% Ceramic
D93	224736	Diode 1N4736A Zener 6.8V	C97	100103	Cap .01µF 50V 10% Ceramic
D94	224736	Diode 1N4736A Zener 6.8V	C106	121101	Cap 100µF 25V Electrolytic
D701	224004	Diode 1N4004 400V 1A	C707	100101	Cap 100pF 50V 10% Ceramic
D702	224004	Diode 1N4004 400V 1A	C708	100101	Cap 100pF 50V 10% Ceramic
D801	220008	Diode Bridge 800V DF08M	C709	100101	Cap 100pF 50V 10% Ceramic
D802	224004	Diode 1N4004 400V 1A	C710	129470	Cap 47µF 25V Electrolytic NP
D803	224004	Diode 1N4004 400V 1A	C711	129470	Cap 47µF 25V Electrolytic NP
D804	224004	Diode 1N4004 400V 1A	C712	100102	Cap .001µF 50V 10% Ceramic
D805	224004	Diode 1N4004 400V 1A	C713	100102	Cap .001µF 50V 10% Ceramic
D806	224004	Diode 1N4004 400V 1A	C714	100101	Cap 100pF 50V 10% Ceramic
D807	224004	Diode 1N4004 400V 1A	C715	100101	Cap 100pF 50V 10% Ceramic
D808	224004	Diode 1N4004 400V 1A	C716	100101	Cap 100pF 50V 10% Ceramic
D809	220008	Diode Bridge 800V DF08M	C717	129470	Cap 47µF 25V Electrolytic NP
D810	224756	Diode 1N4756 Zener 47V	C718	129470	Cap 47µF 25V Electrolytic NP
D811	224004	Diode 1N4004 400V 1A	C719	100102	Cap .001µF 50V 10% Ceramic
D812	224733	Diode 1N4733A Zener 5.1V	C720	100102	Cap .001µF 50V 10% Ceramic
D910	220914	Diode 1N914B Signal 4ns	C721	100101	Cap 100pF 50V 10% Ceramic
D911	220914	Diode 1N914B Signal 4ns	C722	100101	Cap 100pF 50V 10% Ceramic

## MPX Output Module 463002C Parts List

<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>	<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>
C723	100101	Cap 100pF 50V 10% Ceramic	C929	100103	Cap .01μF 50V 10% Ceramic
C724	129470	Cap 47μF 25V Electrolytic NP	C930	100103	Cap .01μF 50V 10% Ceramic
C725	129470	Cap 47μF 25V Electrolytic NP	C931	100103	Cap .01μF 50V 10% Ceramic
C726	100102	Cap .001μF 50V 10% Ceramic	C932	100103	Cap .01μF 50V 10% Ceramic
C727	100102	Cap .001μF 50V 10% Ceramic	C933	100103	Cap .01μF 50V 10% Ceramic
C728	100101	Cap 100pF 50V 10% Ceramic	C934	100104	Cap .1μF 50V 10% Ceramic
C729	100101	Cap 100pF 50V 10% Ceramic	C935	122100	Cap 10μF 35V Electrolytic
C730	100101	Cap 100pF 50V 10% Ceramic			
C731	129470	Cap 47μF 25V Electrolytic NP	R91	506810	681 ohm .25W 1% MF
C732	129470	Cap 47μF 25V Electrolytic NP	R92	507501	7.5 Kohm .25W 1% MF
C733	100102	Cap .001μF 50V 10% Ceramic	R93	501001	1 Kohm .25W 1% MF
C734	100102	Cap .001μF 50V 10% Ceramic	R94	504021	4.02 Kohm .25W 1% MF
C735	100103	Cap .01μF 50V 10% Ceramic	R95	504990	499 ohm .25W 1% MF
C736	100103	Cap .01μF 50V 10% Ceramic	R96	502002	20 Kohm .25W 1% MF
C737	100103	Cap .01μF 50V 10% Ceramic	R99	502002	20 Kohm .25W 1% MF
C738	100103	Cap .01μF 50V 10% Ceramic	R100	500000	Jumper 0 Ohm
C741	100103	Cap .01μF 50V 10% Ceramic	R101	502002	20 Kohm .25W 1% MF
C742	100103	Cap .01μF 50V 10% Ceramic	R102	502002	20 Kohm .25W 1% MF
C743	100103	Cap .01μF 50V 10% Ceramic	R105	502001	2 Kohm .25W 1% MF
C744	100103	Cap .01μF 50V 10% Ceramic	R107	501000	100 ohm .25W 1% MF
C801	102103	Cap .01μF 250V Ceramic	R109	502001	2 Kohm .25W 1% MF
C802	123471	Cap 470μF 50V Electrolytic	R115	502002	20 Kohm .25W 1% MF
C803	123471	Cap 470μF 50V Electrolytic	R709	504999	49.9 Kohm .25W 1% MF
C804	100104	Cap .1μF 50V 10% Ceramic	R710	504999	49.9 Kohm .25W 1% MF
C805	100104	Cap .1μF 50V 10% Ceramic	R711	501003	100 Kohm .25W 1% MF
C806	123100	Cap 10μF 50V Electrolytic	R712	501003	100 Kohm .25W 1% MF
C807	123100	Cap 10μF 50V Electrolytic	R719	504999	49.9 Kohm .25W 1% MF
C808	123100	Cap 10μF 50V Electrolytic	R720	504999	49.9 Kohm .25W 1% MF
C809	123100	Cap 10μF 50V Electrolytic	R721	501003	100 Kohm .25W 1% MF
C810	122470	Cap 47μF 35V Electrolytic	R722	501003	100 Kohm .25W 1% MF
C811	122470	Cap 47μF 35V Electrolytic	R727	504999	49.9 Kohm .25W 1% MF
C812	100103	Cap .01μF 50V 10% Ceramic	R728	504999	49.9 Kohm .25W 1% MF
C813	100103	Cap .01μF 50V 10% Ceramic	R729	501003	100 Kohm .25W 1% MF
C814	100104	Cap .1μF 50V 10% Ceramic	R730	501003	100 Kohm .25W 1% MF
C815	100104	Cap .1μF 50V 10% Ceramic	R737	504999	49.9 Kohm .25W 1% MF
C816	122101	Cap 100μF 35V Electrolytic	R738	504999	49.9 Kohm .25W 1% MF
C817	122101	Cap 100μF 35V Electrolytic	R739	501003	100 Kohm .25W 1% MF
C818	125101	Cap 100μF 100V Electrolytic	R740	501003	100 Kohm .25W 1% MF
C819	100103	Cap .01μF 50V 10% Ceramic	R741	501002	10 Kohm .25W 1% MF
C820	125101	Cap 100μF 100V Electrolytic	R742	501002	10 Kohm .25W 1% MF
C821	124470	Cap 47μF 63V Electrolytic	R801	501102	11 Kohm .25W 1% MF
C822	121101	Cap 100μF 25V Electrolytic	R802	501102	11 Kohm .25W 1% MF
C823	100103	Cap .01μF 50V 10% Ceramic	R803	501001	1 Kohm .25W 1% MF
C920	101560	Cap 56pF 50V NPO Ceramic	R804	501001	1 Kohm .25W 1% MF
C921	101560	Cap 56pF 50V NPO Ceramic	R805	501002	10 Kohm .25W 1% MF
C922	100204	Cap .2μF 50V 10% Ceramic	R806	501002	10 Kohm .25W 1% MF
C923	101200	Cap 20pF 50V NPO Ceramic	R807	507501	7.5 Kohm .25W 1% MF
C924	101200	Cap 20pF 50V NPO Ceramic	R808	501003	100 Kohm .25W 1% MF
C926	100103	Cap .01μF 50V 10% Ceramic	R809	501002	10 Kohm .25W 1% MF
C927	100103	Cap .01μF 50V 10% Ceramic	R810	520102	1 Kohm .25W 5% CF
C928	100103	Cap .01μF 50V 10% Ceramic	R814	532220	22 ohm 2W 5%



## MPX Output Module 463002C Parts List

<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>	<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>
R920	501005	10 Mohm .1W 5% MF	R951	501002	10 Kohm .25W 1% MF
R921	501003	100 Kohm .25W 1% MF	R952	501002	10 Kohm .25W 1% MF
R922	501005	10 Mohm .1W 5% MF	R953	501002	10 Kohm .25W 1% MF
R923	501002	10 Kohm .25W 1% MF	R954	501001	1 Kohm .25W 1% MF
R925	506810	681 ohm .25W 1% MF	RN21	511103	10 Kohm 1% 4SIP Network
R926	501002	10 Kohm .25W 1% MF	RN22	511103	10 Kohm 1% 4SIP Network
R927	502491	2.49 Kohm .25W 1% MF	RN23	511103	10 Kohm 1% 4SIP Network
R928	502491	2.49 Kohm .25W 1% MF	RN24	511103	10 Kohm 1% 4SIP Network
R929	502002	20 Kohm .25W 1% MF	RN25	513203	20 Kohm 1% 3SIP Network
R930	503011	3.01 Kohm .25W 1% MF	RN26	513203	20 Kohm 1% 3SIP Network
R931	501501	1.5 Kohm .25W 1% MF	RN27	511103	10 Kohm 1% 4SIP Network
R933	520102	1 Kohm .25W 5% CF	RN28	511103	10 Kohm 1% 4SIP Network
R935	503011	3.01 Kohm .25W 1% MF	RN91	511103	10 Kohm 1% 4SIP Network
R936	503011	3.01 Kohm .25W 1% MF	RN92	511103	10 Kohm 1% 4SIP Network
R937	503011	3.01 Kohm .25W 1% MF	RN94	511203	20 Kohm 1% 4SIP Network
R939	502491	2.49 Kohm .25W 1% MF	VR91	560102	1 Kohm Trim Pot
R942	501001	1 Kohm .25W 1% MF	B1	050136	Battery
R943	504993	499 Kohm .25W 1% MF	SW91	651106	Sw SPST DIP 6 Pos (Baud)
R944	502001	2 Kohm .25W 1% MF	SW92	651108	Sw SPST DIP 8 Pos (Address)
R945	501001	1 Kohm .25W 1% MF	SW94	652200	Sw 2 Pos Slide (RS232/422)
R946	502001	2 Kohm .25W 1% MF			
R947	501002	10 Kohm .25W 1% MF			
R948	501003	100 Kohm .25W 1% MF			
R949	501003	100 Kohm .25W 1% MF			
R950	504993	499 Kohm .25W 1% MF			

## SMX/AMB Input Module 462001D Parts List

<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>	<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>
A11	323078	IC Dual Opamp MC33078	D205	224447	Diode 1N4447 Signal
A12	323079	IC Quad Opamp MC33079	D206	224447	Diode 1N4447 Signal
A13	352150	IC VCA 2150A	D207	224689	Diode 1N4689 Zener 5.1V
A14	352150	IC VCA 2150A	D208	224447	Diode 1N4447 Signal
A15	320412	IC Dual Opamp LF412	D301	224004	Diode 1N4004 400V 1A
A22	323079	IC Quad Opamp MC33079	D302	224004	Diode 1N4004 400V 1A
A23	352150	IC VCA 2150A	D303	224004	Diode 1N4004 400V 1A
A24	352150	IC VCA 2150A	D304	224004	Diode 1N4004 400V 1A
A31	323078	IC Dual Opamp MC33078	D305	224447	Diode 1N4447 Signal
A32	323079	IC Quad Opamp MC33079	D306	224447	Diode 1N4447 Signal
A33	352150	IC VCA 2150A	D307	224689	Diode 1N4689 Zener 5.1V
A34	352150	IC VCA 2150A	D308	224447	Diode 1N4447 Signal
A35	320412	IC Dual Opamp LF412	D401	224004	Diode 1N4004 400V 1A
A42	323079	IC Quad Opamp MC33079	D402	224004	Diode 1N4004 400V 1A
A43	352150	IC VCA 2150A	D403	224004	Diode 1N4004 400V 1A
A44	352150	IC VCA 2150A	D404	224004	Diode 1N4004 400V 1A
A51	323078	IC Dual Opamp MC33078	D405	224447	Diode 1N4447 Signal
A52	323079	IC Quad Opamp MC33079	D406	224447	Diode 1N4447 Signal
A53	352150	IC VCA 2150A	D407	224689	Diode 1N4689 Zener 5.1V
A54	352150	IC VCA 2150A	D408	224447	Diode 1N4447 Signal
A55	320412	IC Dual Opamp LF412	D501	224004	Diode 1N4004 400V 1A
A62	323079	IC Quad Opamp MC33079	D502	224004	Diode 1N4004 400V 1A
A63	352150	IC VCA 2150A	D503	224004	Diode 1N4004 400V 1A
A64	352150	IC VCA 2150A	D504	224004	Diode 1N4004 400V 1A
A701	323078	IC Dual Opamp MC33078	D505	224447	Diode 1N4447 Signal
Q11	800970	PNP 2SA970 TO92	D506	224447	Diode 1N4447 Signal
Q12	800970	PNP 2SA970 TO92	D507	224689	Diode 1N4689 Zener 5.1V
Q21	800970	PNP 2SA970 TO92	D508	224447	Diode 1N4447 Signal
Q22	800970	PNP 2SA970 TO92	D601	224004	Diode 1N4004 400V 1A
Q31	800970	PNP 2SA970 TO92	D602	224004	Diode 1N4004 400V 1A
Q32	800970	PNP 2SA970 TO92	D603	224004	Diode 1N4004 400V 1A
Q41	800970	PNP 2SA970 TO92	D604	224004	Diode 1N4004 400V 1A
Q42	800970	PNP 2SA970 TO92	D605	224447	Diode 1N4447 Signal
Q51	800970	PNP 2SA970 TO92	D606	224447	Diode 1N4447 Signal
Q52	800970	PNP 2SA970 TO92	D607	224689	Diode 1N4689 Zener 5.1V
Q61	800970	PNP 2SA970 TO92	D608	224447	Diode 1N4447 Signal
Q62	800970	PNP 2SA970 TO92	D813	224733	Diode 1N4733A Zener 5.1V
D101	224004	Diode 1N4004 400V 1A	D814	500000	Jumper 0 Ohm
D102	224004	Diode 1N4004 400V 1A	L11	400271	Choke 270μH
D103	224004	Diode 1N4004 400V 1A	L12	400271	Choke 270μH
D104	224004	Diode 1N4004 400V 1A	L21	400271	Choke 270μH
D105	224447	Diode 1N4447 Signal	L22	400271	Choke 270μH
D106	224447	Diode 1N4447 Signal	L31	400271	Choke 270μH
D107	224689	Diode 1N4689 Zener 5.1V	L32	400271	Choke 270μH
D108	224447	Diode 1N4447 Signal	L41	400271	Choke 270μH
D201	224004	Diode 1N4004 400V 1A	L42	400271	Choke 270μH
D202	224004	Diode 1N4004 400V 1A	L51	400271	Choke 270μH
D203	224004	Diode 1N4004 400V 1A	L52	400271	Choke 270μH
D204	224004	Diode 1N4004 400V 1A	L61	400271	Choke 270μH
			L62	400271	Choke 270μH

## SMX/AMB Input Module 462001D Parts List

<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>	<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>
FB11	400001	Ferrite Bead With Leads	C127	100200	Cap 20pF 50V 10% Ceramic
FB12	400001	Ferrite Bead With Leads	C130	100103	Cap .01μF 50V 10% Ceramic
FB13	400000	Ferrite Bead No Leads	C131	100103	Cap .01μF 50V 10% Ceramic
FB14	400000	Ferrite Bead No Leads	C132	122100	Cap 10μF 35V Electrolytic
FB21	400001	Ferrite Bead With Leads	C201	100680	Cap 68pF 50V 10% Ceramic
FB22	400001	Ferrite Bead With Leads	C202	100680	Cap 68pF 50V 10% Ceramic
FB23	400000	Ferrite Bead No Leads	C203	100152	Cap 1500pF 50V 10% Ceramic
FB24	400000	Ferrite Bead No Leads	C204	100152	Cap 1500pF 50V 10% Ceramic
FB31	400001	Ferrite Bead With Leads	C205	124470	Cap 47μF 63V Electrolytic
FB32	400001	Ferrite Bead With Leads	C206	124470	Cap 47μF 63V Electrolytic
FB33	400000	Ferrite Bead No Leads	C207	100472	Cap .0047μF 50V 10% Ceramic
FB34	400000	Ferrite Bead No Leads	C208	100472	Cap .0047μF 50V 10% Ceramic
FB41	400001	Ferrite Bead With Leads	C209	124470	Cap 47μF 63V Electrolytic
FB42	400001	Ferrite Bead With Leads	C210	124470	Cap 47μF 63V Electrolytic
FB43	400000	Ferrite Bead No Leads	C211	100221	Cap 220pF 50V 10% Ceramic
FB44	400000	Ferrite Bead No Leads	C212	100221	Cap 220pF 50V 10% Ceramic
FB51	400001	Ferrite Bead With Leads	C213	100470	Cap 47pF 50V 10% Ceramic
FB52	400001	Ferrite Bead With Leads	C214	100470	Cap 47pF 50V 10% Ceramic
FB53	400000	Ferrite Bead No Leads	C215	120471	Cap 470μF 6.3V Electrolytic
FB54	400000	Ferrite Bead No Leads	C216	150104	Cap .1μF 50V 5% Film
FB61	400001	Ferrite Bead With Leads	C217	122100	Cap 10μF 35V Electrolytic
FB62	400001	Ferrite Bead With Leads	C218	100470	Cap 47pF 50V 10% Ceramic
FB63	400000	Ferrite Bead No Leads	C219	150104	Cap .1μF 50V 5% Film
FB64	400000	Ferrite Bead No Leads	C220	122100	Cap 10μF 35V Electrolytic
C101	100680	Cap 68pF 50V 10% Ceramic	C221	100470	Cap 47pF 50V 10% Ceramic
C102	100680	Cap 68pF 50V 10% Ceramic	C222	100103	Cap .01μF 50V 10% Ceramic
C103	100152	Cap 1500pF 50V 10% Ceramic	C223	100103	Cap .01μF 50V 10% Ceramic
C104	100152	Cap 1500pF 50V 10% Ceramic	C224	100103	Cap .01μF 50V 10% Ceramic
C105	124470	Cap 47μF 63V Electrolytic	C225	100103	Cap .01μF 50V 10% Ceramic
C106	124470	Cap 47μF 63V Electrolytic	C226	161150	Cap 15μF 25V 10% Tantalum
C107	100472	Cap .0047μF 50V 10% Ceramic	C227	100200	Cap 20pF 50V 10% Ceramic
C108	100472	Cap .0047μF 50V 10% Ceramic	C232	122100	Cap 10μF 35V Electrolytic
C109	124470	Cap 47μF 63V Electrolytic	C301	100680	Cap 68pF 50V 10% Ceramic
C110	124470	Cap 47μF 63V Electrolytic	C302	100680	Cap 68pF 50V 10% Ceramic
C111	100221	Cap 220pF 50V 10% Ceramic	C303	100152	Cap 1500pF 50V 10% Ceramic
C112	100221	Cap 220pF 50V 10% Ceramic	C304	100152	Cap 1500pF 50V 10% Ceramic
C113	100470	Cap 47pF 50V 10% Ceramic	C305	124470	Cap 47μF 63V Electrolytic
C114	100470	Cap 47pF 50V 10% Ceramic	C306	124470	Cap 47μF 63V Electrolytic
C115	120471	Cap 470μF 6.3V Electrolytic	C307	100472	Cap .0047μF 50V 10% Ceramic
C116	150104	Cap .1μF 50V 5% Film	C308	100472	Cap .0047μF 50V 10% Ceramic
C117	122100	Cap 10μF 35V Electrolytic	C309	124470	Cap 47μF 63V Electrolytic
C118	100470	Cap 47pF 50V 10% Ceramic	C310	124470	Cap 47μF 63V Electrolytic
C119	150104	Cap .1μF 50V 5% Film	C311	100221	Cap 220pF 50V 10% Ceramic
C120	122100	Cap 10μF 35V Electrolytic	C312	100221	Cap 220pF 50V 10% Ceramic
C121	100470	Cap 47pF 50V 10% Ceramic	C313	100470	Cap 47pF 50V 10% Ceramic
C122	100103	Cap .01μF 50V 10% Ceramic	C314	100470	Cap 47pF 50V 10% Ceramic
C123	100103	Cap .01μF 50V 10% Ceramic	C315	120471	Cap 470μF 6.3V Electrolytic
C124	100103	Cap .01μF 50V 10% Ceramic	C317	122100	Cap 10μF 35V Electrolytic
C125	100103	Cap .01μF 50V 10% Ceramic	C316	150104	Cap .1μF 50V 5% Film
C126	161150	Cap 15μF 25V 10% Tantalum	C318	100470	Cap 47pF 50V 10% Ceramic
			C319	150104	Cap .1μF 50V 5% Film

## SMX/AMB Input Module 462001D Parts List

<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>	<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>
C320	122100	Cap 10μF 35V Electrolytic	C513	100470	Cap 47pF 50V 10% Ceramic
C321	100470	Cap 47pF 50V 10% Ceramic	C514	100470	Cap 47pF 50V 10% Ceramic
C322	100103	Cap .01μF 50V 10% Ceramic	C515	120471	Cap 470μF 6.3V Electrolytic
C323	100103	Cap .01μF 50V 10% Ceramic	C516	150104	Cap .1μF 50V 5% Film
C324	100103	Cap .01μF 50V 10% Ceramic	C517	122100	Cap 10μF 35V Electrolytic
C325	100103	Cap .01μF 50V 10% Ceramic	C518	100470	Cap 47pF 50V 10% Ceramic
C326	161150	Cap 15μF 25V 10% Tantalum	C519	150104	Cap .1μF 50V 5% Film
C327	100200	Cap 20pF 50V 10% Ceramic	C520	122100	Cap 10μF 35V Electrolytic
C330	100103	Cap .01μF 50V 10% Ceramic	C521	100470	Cap 47pF 50V 10% Ceramic
C331	100103	Cap .01μF 50V 10% Ceramic	C522	100103	Cap .01μF 50V 10% Ceramic
C332	122100	Cap 10μF 35V Electrolytic	C523	100103	Cap .01μF 50V 10% Ceramic
C401	100680	Cap 68pF 50V 10% Ceramic	C524	100103	Cap .01μF 50V 10% Ceramic
C402	100680	Cap 68pF 50V 10% Ceramic	C525	100103	Cap .01μF 50V 10% Ceramic
C403	100152	Cap 1500pF 50V 10% Ceramic	C526	161150	Cap 15μF 25V 10% Tantalum
C404	100152	Cap 1500pF 50V 10% Ceramic	C527	100200	Cap 20pF 50V 10% Ceramic
C405	124470	Cap 47μF 63V Electrolytic	C530	100103	Cap .01μF 50V 10% Ceramic
C406	124470	Cap 47μF 63V Electrolytic	C531	100103	Cap .01μF 50V 10% Ceramic
C407	100472	Cap .0047μF 50V 10% Ceramic	C532	122100	Cap 10μF 35V Electrolytic
C408	100472	Cap .0047μF 50V 10% Ceramic	C601	100680	Cap 68pF 50V 10% Ceramic
C409	124470	Cap 47μF 63V Electrolytic	C602	100680	Cap 68pF 50V 10% Ceramic
C410	124470	Cap 47μF 63V Electrolytic	C603	100152	Cap 1500pF 50V 10% Ceramic
C411	100221	Cap 220pF 50V 10% Ceramic	C604	100152	Cap 1500pF 50V 10% Ceramic
C412	100221	Cap 220pF 50V 10% Ceramic	C605	124470	Cap 47μF 63V Electrolytic
C413	100470	Cap 47pF 50V 10% Ceramic	C606	124470	Cap 47μF 63V Electrolytic
C414	100470	Cap 47pF 50V 10% Ceramic	C607	100472	Cap .0047μF 50V 10% Ceramic
C415	120471	Cap 470μF 6.3V Electrolytic	C608	100472	Cap .0047μF 50V 10% Ceramic
C416	150104	Cap .1μF 50V 5% Film	C609	124470	Cap 47μF 63V Electrolytic
C417	122100	Cap 10μF 35V Electrolytic	C610	124470	Cap 47μF 63V Electrolytic
C418	100470	Cap 47pF 50V 10% Ceramic	C611	100221	Cap 220pF 50V 10% Ceramic
C419	150104	Cap .1μF 50V 5% Film	C612	100221	Cap 220pF 50V 10% Ceramic
C420	122100	Cap 10μF 35V Electrolytic	C613	100470	Cap 47pF 50V 10% Ceramic
C421	100470	Cap 47pF 50V 10% Ceramic	C614	100470	Cap 47pF 50V 10% Ceramic
C422	100103	Cap .01μF 50V 10% Ceramic	C615	120471	Cap 470μF 6.3V Electrolytic
C423	100103	Cap .01μF 50V 10% Ceramic	C616	150104	Cap .1μF 50V 5% Film
C424	100103	Cap .01μF 50V 10% Ceramic	C617	122100	Cap 10μF 35V Electrolytic
C425	100103	Cap .01μF 50V 10% Ceramic	C618	100470	Cap 47pF 50V 10% Ceramic
C426	161150	Cap 15μF 25V 10% Tantalum	C619	150104	Cap .1μF 50V 5% Film
C427	100200	Cap 20pF 50V 10% Ceramic	C620	122100	Cap 10μF 35V Electrolytic
C432	122100	Cap 10μF 35V Electrolytic	C621	100470	Cap 47pF 50V 10% Ceramic
C501	100680	Cap 68pF 50V 10% Ceramic	C622	100103	Cap .01μF 50V 10% Ceramic
C502	100680	Cap 68pF 50V 10% Ceramic	C623	100103	Cap .01μF 50V 10% Ceramic
C503	100152	Cap 1500pF 50V 10% Ceramic	C624	100103	Cap .01μF 50V 10% Ceramic
C504	100152	Cap 1500pF 50V 10% Ceramic	C625	100103	Cap .01μF 50V 10% Ceramic
C505	124470	Cap 47μF 63V Electrolytic	C626	161150	Cap 15μF 25V 10% Tantalum
C506	124470	Cap 47μF 63V Electrolytic	C627	100200	Cap 20pF 50V 10% Ceramic
C507	100472	Cap .0047μF 50V 10% Ceramic	C632	122100	Cap 10μF 35V Electrolytic
C508	100472	Cap .0047μF 50V 10% Ceramic	C701	129470	Cap 47μF 25V Electrolytic NP
C509	124470	Cap 47μF 63V Electrolytic	C702	100470	Cap 47pF 50V 10% Ceramic
C510	124470	Cap 47μF 63V Electrolytic	C703	129470	Cap 47μF 25V Electrolytic NP
C511	100221	Cap 220pF 50V 10% Ceramic	C704	100470	Cap 47pF 50V 10% Ceramic
C512	100221	Cap 220pF 50V 10% Ceramic	C705	122109	Cap 1μF 35V Electrolytic

## SMX/AMB Input Module 462001D Parts List

<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>	<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>
C706	122109	Cap 1 $\mu$ F 35V Electrolytic	R209	503011	3.01 Kohm .25W 1% MF
C745	100103	Cap .01 $\mu$ F 50V 10% Ceramic	R210	503011	3.01 Kohm .25W 1% MF
C746	100103	Cap .01 $\mu$ F 50V 10% Ceramic	R211	501000	100 ohm .25W 1% MF
C747	100103	Cap .01 $\mu$ F 50V 10% Ceramic	R212	501002	10 Kohm .25W 1% MF
C748	123331	Cap 330 $\mu$ F 50V Electrolytic	R213	501002	10 Kohm .25W 1% MF
C823	122101	Cap 100 $\mu$ F 35V Electrolytic	R218	501002	10 Kohm .25W 1% MF
R101	502003	200 Kohm .25W 1% MF	R219	501471	1.47 Kohm .25W 1% MF
R102	502003	200 Kohm .25W 1% MF	R220	504990	499 ohm .25W 1% MF
R103	501002	10 Kohm .25W 1% MF	R221	502002	20 Kohm .25W 1% MF
R104	501002	10 Kohm .25W 1% MF	R222	502002	20 Kohm .25W 1% MF
R105	506810	681 ohm .25W 1% MF	R223	502002	20 Kohm .25W 1% MF
R106	506810	681 ohm .25W 1% MF	R224	502003	200 Kohm .25W 1% MF
R107	506811	6.81 Kohm .25W 1% MF	R225	504999	49.9 Kohm .25W 1% MF
R108	506811	6.81 Kohm .25W 1% MF	R226	504991	4.99 Kohm .25W 1% MF
R109	503011	3.01 Kohm .25W 1% MF	R227	501002	10 Kohm .25W 1% MF
R110	503011	3.01 Kohm .25W 1% MF	R228	501471	1.47 Kohm .25W 1% MF
R111	501000	100 ohm .25W 1% MF	R229	504990	499 ohm .25W 1% MF
R112	501002	10 Kohm .25W 1% MF	R230	502002	20 Kohm .25W 1% MF
R113	501002	10 Kohm .25W 1% MF	R231	502002	20 Kohm .25W 1% MF
R118	501002	10 Kohm .25W 1% MF	R232	502002	20 Kohm .25W 1% MF
R119	501471	1.47 Kohm .25W 1% MF	R233	502003	200 Kohm .25W 1% MF
R120	504990	499 ohm .25W 1% MF	R234	504999	49.9 Kohm .25W 1% MF
R121	502002	20 Kohm .25W 1% MF	R235	504991	4.99 Kohm .25W 1% MF
R122	502002	20 Kohm .25W 1% MF	R237	501002	10 Kohm .25W 1% MF
R123	502002	20 Kohm .25W 1% MF	R238	505621	5.62 Kohm .25W 1% MF
R124	502003	200 Kohm .25W 1% MF	R241	504993	499 Kohm .25W 1% MF
R125	504999	49.9 Kohm .25W 1% MF	R242	504991	4.99 Kohm .25W 1% MF
R126	504991	4.99 Kohm .25W 1% MF	R243	504999	49.9 Kohm .25W 1% MF
R127	501002	10 Kohm .25W 1% MF	R301	502003	200 Kohm .25W 1% MF
R128	501471	1.47 Kohm .25W 1% MF	R302	502003	200 Kohm .25W 1% MF
R129	504990	499 ohm .25W 1% MF	R303	501002	10 Kohm .25W 1% MF
R130	502002	20 Kohm .25W 1% MF	R304	501002	10 Kohm .25W 1% MF
R131	502002	20 Kohm .25W 1% MF	R305	506810	681 ohm .25W 1% MF
R132	502002	20 Kohm .25W 1% MF	R306	506810	681 ohm .25W 1% MF
R133	502003	200 Kohm .25W 1% MF	R307	506811	6.81 Kohm .25W 1% MF
R134	504999	49.9 Kohm .25W 1% MF	R308	506811	6.81 Kohm .25W 1% MF
R135	504991	4.99 Kohm .25W 1% MF	R309	503011	3.01 Kohm .25W 1% MF
R137	501002	10 Kohm .25W 1% MF	R310	503011	3.01 Kohm .25W 1% MF
R138	505621	5.62 Kohm .25W 1% MF	R311	501000	100 ohm .25W 1% MF
R141	504993	499 Kohm .25W 1% MF	R312	501002	10 Kohm .25W 1% MF
R142	504991	4.99 Kohm .25W 1% MF	R313	501002	10 Kohm .25W 1% MF
R143	504999	49.9 Kohm .25W 1% MF	R318	501002	10 Kohm .25W 1% MF
R201	502003	200 Kohm .25W 1% MF	R319	501471	1.47 Kohm .25W 1% MF
R202	502003	200 Kohm .25W 1% MF	R320	504990	499 ohm .25W 1% MF
R203	501002	10 Kohm .25W 1% MF	R321	502002	20 Kohm .25W 1% MF
R204	501002	10 Kohm .25W 1% MF	R322	502002	20 Kohm .25W 1% MF
R205	506810	681 ohm .25W 1% MF	R323	502002	20 Kohm .25W 1% MF
R206	506810	681 ohm .25W 1% MF	R324	502003	200 Kohm .25W 1% MF
R207	506811	6.81 Kohm .25W 1% MF	R325	504999	49.9 Kohm .25W 1% MF
R208	506811	6.81 Kohm .25W 1% MF	R326	504991	4.99 Kohm .25W 1% MF
			R327	501002	10 Kohm .25W 1% MF

## SMX/AMB Input Module 462001D Parts List

<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>	<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>
R328	501471	1.47 Kohm .25W 1% MF	R503	501002	10 Kohm .25W 1% MF
R329	504990	499 ohm .25W 1% MF	R504	501002	10 Kohm .25W 1% MF
R330	502002	20 Kohm .25W 1% MF	R505	506810	681 ohm .25W 1% MF
R331	502002	20 Kohm .25W 1% MF	R506	506810	681 ohm .25W 1% MF
R332	502002	20 Kohm .25W 1% MF	R507	506811	6.81 Kohm .25W 1% MF
R333	502003	200 Kohm .25W 1% MF	R508	506811	6.81 Kohm .25W 1% MF
R334	504999	49.9 Kohm .25W 1% MF	R509	503011	3.01 Kohm .25W 1% MF
R335	504991	4.99 Kohm .25W 1% MF	R510	503011	3.01 Kohm .25W 1% MF
R337	501002	10 Kohm .25W 1% MF	R511	501000	100 ohm .25W 1% MF
R338	505621	5.62 Kohm .25W 1% MF	R512	501002	10 Kohm .25W 1% MF
R341	504993	499 Kohm .25W 1% MF	R513	501002	10 Kohm .25W 1% MF
R342	504991	4.99 Kohm .25W 1% MF	R518	501002	10 Kohm .25W 1% MF
R343	504999	49.9 Kohm .25W 1% MF	R519	501471	1.47 Kohm .25W 1% MF
R401	502003	200 Kohm .25W 1% MF	R520	504990	499 ohm .25W 1% MF
R402	502003	200 Kohm .25W 1% MF	R521	502002	20 Kohm .25W 1% MF
R403	501002	10 Kohm .25W 1% MF	R522	502002	20 Kohm .25W 1% MF
R404	501002	10 Kohm .25W 1% MF	R523	502002	20 Kohm .25W 1% MF
R405	506810	681 ohm .25W 1% MF	R524	502003	200 Kohm .25W 1% MF
R406	506810	681 ohm .25W 1% MF	R525	504999	49.9 Kohm .25W 1% MF
R407	506811	6.81 Kohm .25W 1% MF	R526	504991	4.99 Kohm .25W 1% MF
R408	506811	6.81 Kohm .25W 1% MF	R527	501002	10 Kohm .25W 1% MF
R409	503011	3.01 Kohm .25W 1% MF	R528	501471	1.47 Kohm .25W 1% MF
R410	503011	3.01 Kohm .25W 1% MF	R529	504990	499 ohm .25W 1% MF
R411	501000	100 ohm .25W 1% MF	R530	502002	20 Kohm .25W 1% MF
R412	501002	10 Kohm .25W 1% MF	R531	502002	20 Kohm .25W 1% MF
R413	501002	10 Kohm .25W 1% MF	R532	502002	20 Kohm .25W 1% MF
R418	501002	10 Kohm .25W 1% MF	R533	502003	200 Kohm .25W 1% MF
R419	501471	1.47 Kohm .25W 1% MF	R534	504999	49.9 Kohm .25W 1% MF
R420	504990	499 ohm .25W 1% MF	R535	504991	4.99 Kohm .25W 1% MF
R421	502002	20 Kohm .25W 1% MF	R537	501002	10 Kohm .25W 1% MF
R422	502002	20 Kohm .25W 1% MF	R538	505621	5.62 Kohm .25W 1% MF
R423	502002	20 Kohm .25W 1% MF	R541	504993	499 Kohm .25W 1% MF
R424	502003	200 Kohm .25W 1% MF	R542	504991	4.99 Kohm .25W 1% MF
R425	504999	49.9 Kohm .25W 1% MF	R543	504999	49.9 Kohm .25W 1% MF
R426	504991	4.99 Kohm .25W 1% MF	R601	502003	200 Kohm .25W 1% MF
R427	501002	10 Kohm .25W 1% MF	R602	502003	200 Kohm .25W 1% MF
R428	501471	1.47 Kohm .25W 1% MF	R603	501002	10 Kohm .25W 1% MF
R429	504990	499 ohm .25W 1% MF	R604	501002	10 Kohm .25W 1% MF
R430	502002	20 Kohm .25W 1% MF	R605	506810	681 ohm .25W 1% MF
R431	502002	20 Kohm .25W 1% MF	R606	506810	681 ohm .25W 1% MF
R432	502002	20 Kohm .25W 1% MF	R607	506811	6.81 Kohm .25W 1% MF
R433	502003	200 Kohm .25W 1% MF	R608	506811	6.81 Kohm .25W 1% MF
R434	504999	49.9 Kohm .25W 1% MF	R609	503011	3.01 Kohm .25W 1% MF
R435	504991	4.99 Kohm .25W 1% MF	R610	503011	3.01 Kohm .25W 1% MF
R437	501002	10 Kohm .25W 1% MF	R611	501000	100 ohm .25W 1% MF
R438	505621	5.62 Kohm .25W 1% MF	R612	501002	10 Kohm .25W 1% MF
R441	504993	499 Kohm .25W 1% MF	R613	501002	10 Kohm .25W 1% MF
R442	504991	4.99 Kohm .25W 1% MF	R618	501002	10 Kohm .25W 1% MF
R443	504999	49.9 Kohm .25W 1% MF	R619	501471	1.47 Kohm .25W 1% MF
R501	502003	200 Kohm .25W 1% MF	R620	504990	499 ohm .25W 1% MF
R502	502003	200 Kohm .25W 1% MF	R621	502002	20 Kohm .25W 1% MF

## SMX/AMB Input Module 462001D Parts List

<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>	<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>
R622	502002	20 Kohm .25W 1% MF	RN10	513203	20 Kohm 1% 3SIP Network
R623	502002	20 Kohm .25W 1% MF	RN11	513203	20 Kohm 1% 3SIP Network
R624	502003	200 Kohm .25W 1% MF	RN12	513203	20 Kohm 1% 3SIP Network
R625	504999	49.9 Kohm .25W 1% MF	VR11	583123	10 Kohm Screw Adjust Pot
R626	504991	4.99 Kohm .25W 1% MF	VR12	560104	100 Kohm Trim Pot
R627	501002	10 Kohm .25W 1% MF	VR13	560104	100 Kohm Trim Pot
R628	501471	1.47 Kohm .25W 1% MF	VR14	560104	100 Kohm Trim Pot
R629	504990	499 ohm .25W 1% MF	VR21	583123	10 Kohm Screw Adjust Pot
R630	502002	20 Kohm .25W 1% MF	VR22	560104	100 Kohm Trim Pot
R631	502002	20 Kohm .25W 1% MF	VR23	560104	100 Kohm Trim Pot
R632	502002	20 Kohm .25W 1% MF	VR24	560104	100 Kohm Trim Pot
R633	502003	200 Kohm .25W 1% MF	VR31	583123	10 Kohm Screw Adjust Pot
R634	504999	49.9 Kohm .25W 1% MF	VR32	560104	100 Kohm Trim Pot
R635	504991	4.99 Kohm .25W 1% MF	VR33	560104	100 Kohm Trim Pot
R637	501002	10 Kohm .25W 1% MF	VR34	560104	100 Kohm Trim Pot
R638	505621	5.62 Kohm .25W 1% MF	VR41	583123	10 Kohm Screw Adjust Pot
R641	504993	499 Kohm .25W 1% MF	VR42	560104	100 Kohm Trim Pot
R642	504991	4.99 Kohm .25W 1% MF	VR43	560104	100 Kohm Trim Pot
R643	504999	49.9 Kohm .25W 1% MF	VR44	560104	100 Kohm Trim Pot
R701	502002	20 Kohm .25W 1% MF	VR51	583123	10 Kohm Screw Adjust Pot
R702	502002	20 Kohm .25W 1% MF	VR52	560104	100 Kohm Trim Pot
R745	502002	20 Kohm .25W 1% MF	VR53	560104	100 Kohm Trim Pot
R746	502002	20 Kohm .25W 1% MF	VR54	560104	100 Kohm Trim Pot
R811	504021	4.02 Kohm .25W 1% MF	VR61	583123	10 Kohm Screw Adjust Pot
R812	507501	7.5 Kohm .25W 1% MF	VR62	560104	100 Kohm Trim Pot
R813	501001	1 Kohm .25W 1% MF	VR63	560104	100 Kohm Trim Pot
RN1	511203	20 Kohm 1% 4SIP Network	VR64	560104	100 Kohm Trim Pot
RN2	511203	20 Kohm 1% 4SIP Network	VR81	560102	1 Kohm Trim Pot
RN3	511203	20 Kohm 1% 4SIP Network	SW1	652300	Sw DP3T (M/L/P)
RN4	511203	20 Kohm 1% 4SIP Network	SW2	652300	Sw DP3T (M/L/P)
RN5	511203	20 Kohm 1% 4SIP Network	SW3	652300	Sw DP3T (M/L/P)
RN6	511203	20 Kohm 1% 4SIP Network	SW4	652300	Sw DP3T (M/L/P)
RN7	513203	20 Kohm 1% 3SIP Network	SW5	652300	Sw DP3T (M/L/P)
RN8	513203	20 Kohm 1% 3SIP Network	SW6	652300	Sw DP3T (M/L/P)
RN9	513203	20 Kohm 1% 3SIP Network			

## SMX/AMB Output Module 462002D Parts List

<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>	<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>
A91	320074	IC Quad Opamp TL074	D705	224689	Diode 1N4689 Zener 5.1V
A92	352300	IC Analog Demux SSM2300	D706	224447	Diode 1N4447 Signal
A93	352300	IC Analog Demux SSM2300	D707	224447	Diode 1N4447 Signal
A94	323079	IC Quad Opamp MC33079	D708	224447	Diode 1N4447 Signal
A701	325532	IC Dual Opamp NE5532	D709	224689	Diode 1N4689 Zener 5.1V
A702	325532	IC Dual Opamp NE5532	D710	224447	Diode 1N4447 Signal
A703	325532	IC Dual Opamp NE5532	D801	220008	Diode Bridge 800V DF08M
A704	325532	IC Dual Opamp NE5532	D802	224004	Diode 1N4004 400V 1A
A705	320412	IC Dual Opamp LF412	D803	224004	Diode 1N4004 400V 1A
A801	370337	IC Regulator -Adjust LM337	D804	224004	Diode 1N4004 400V 1A
A802	370317	IC Regulator +Adjust LM317	D805	224004	Diode 1N4004 400V 1A
A803	373405	IC Regulator +5V LM340T-5.0	D806	224004	Diode 1N4004 400V 1A
U91	350830	IC D/A Converter DAC0830	D807	224004	Diode 1N4004 400V 1A
U92	350816	IC A/D Converter ADC0816	D808	224004	Diode 1N4004 400V 1A
U93	314702	IC Baud Gen IM4702	D809	220008	Diode Bridge 800V DF08M
U94	300074	IC Flip Flop 74LS74	D810	224756	Diode 1N4756 Zener 47V
U95	300244	IC Tristate Driver 74LS244	D811	224004	Diode 1N4004 400V 1A
U96	317058	IC Microcontroller 705	D812	224733	Diode 1N4733A Zener 5.1V
U97	316402	IC UART IM6402	D910	224447	Diode 1N4447 Signal
U98	304093	IC Quad NAND CD4093	D911	224447	Diode 1N4447 Signal
U99	340007	IC Hex Buffer DM7407	D912	224447	Diode 1N4447 Signal
U910	343691	IC Quad Line Driver DS3691	D913	224447	Diode 1N4447 Signal
U911	342632	IC Quad Diff Line Rcvr 26LS32	D914	224742	Diode 1N4742B Zener 12V
U912	334200	IC Opto-Coupler HCPL4200	D915	225819	Diode 1N5819 Schottky
			D916	225819	Diode 1N5819 Schottky
Q90	817400	NPN Dual 7SIP UPA74HA	D917	224447	Diode 1N4447 Signal
Q91	800093	PNP MPSA93 TO92	D918	224447	Diode 1N4447 Signal
Q94	814401	NPN 2N4401 TO92	D919	224447	Diode 1N4447 Signal
Q701	814401	NPN 2N4401 TO92	D920	224447	Diode 1N4447 Signal
Q702	814401	NPN 2N4401 TO92	D921	224447	Diode 1N4447 Signal
Q801	814401	NPN 2N4401 TO92	D922	224733	Diode 1N4733A Zener 5.1V
Q802	804403	PNP 2N4403 TO92	D923	224004	Diode 1N4004 400V 1A
Q803	805551	NPN 2N5551 TO92	D924	224740	Diode 1N4740A Zener 10V
Q804	805551	NPN 2N5551 TO92			
D91	224447	Diode 1N4447 Signal	LD1	235732	LED Amber Enable
D92	224004	Diode 1N4004 400V 1A	LD2	234413	LED Yellow DSPI
D93	224736	Diode 1N4736A Zener 6.8V	X91	922457	XTAL 2.4576 MHz
D94	224736	Diode 1N4736A Zener 6.8V	X92	923686	XTAL 3.6864 MHz
D96	500000	Jumper 0 Ohm			
D97	224733	Diode 1N4733A Zener 5.1V	K1	482024	Relay 2FA 24V PRMA2A24
D98	224447	Diode 1N4447 Signal	K2	482024	Relay 2FA 24V PRMA2A24
D99	224447	Diode 1N4447 Signal	K3	484424	Relay 2FC 24V LM44E00
D100	225819	Diode 1N5819 Schottky	K4	482024	Relay 2FA 24V PRMA2A24
D101	225819	Diode 1N5819 Schottky			
D102	225819	Diode 1N5819 Schottky	T801	722434	XFMR Power 24VA
D103	224689	Diode 1N4689 Zener 5.1V			
D701	224004	Diode 1N4004 400V 1A	C91	100101	Cap 100pF 50V 10% Ceramic
D702	224004	Diode 1N4004 400V 1A	C92	122100	Cap 10µF 35V Electrolytic
D703	224447	Diode 1N4447 Signal	C93	121101	Cap 100µF 25V Electrolytic
D704	224447	Diode 1N4447 Signal	C94	100103	Cap .01µF 50V 10% Ceramic



## SMX/AMB Output Module 462002D Parts List

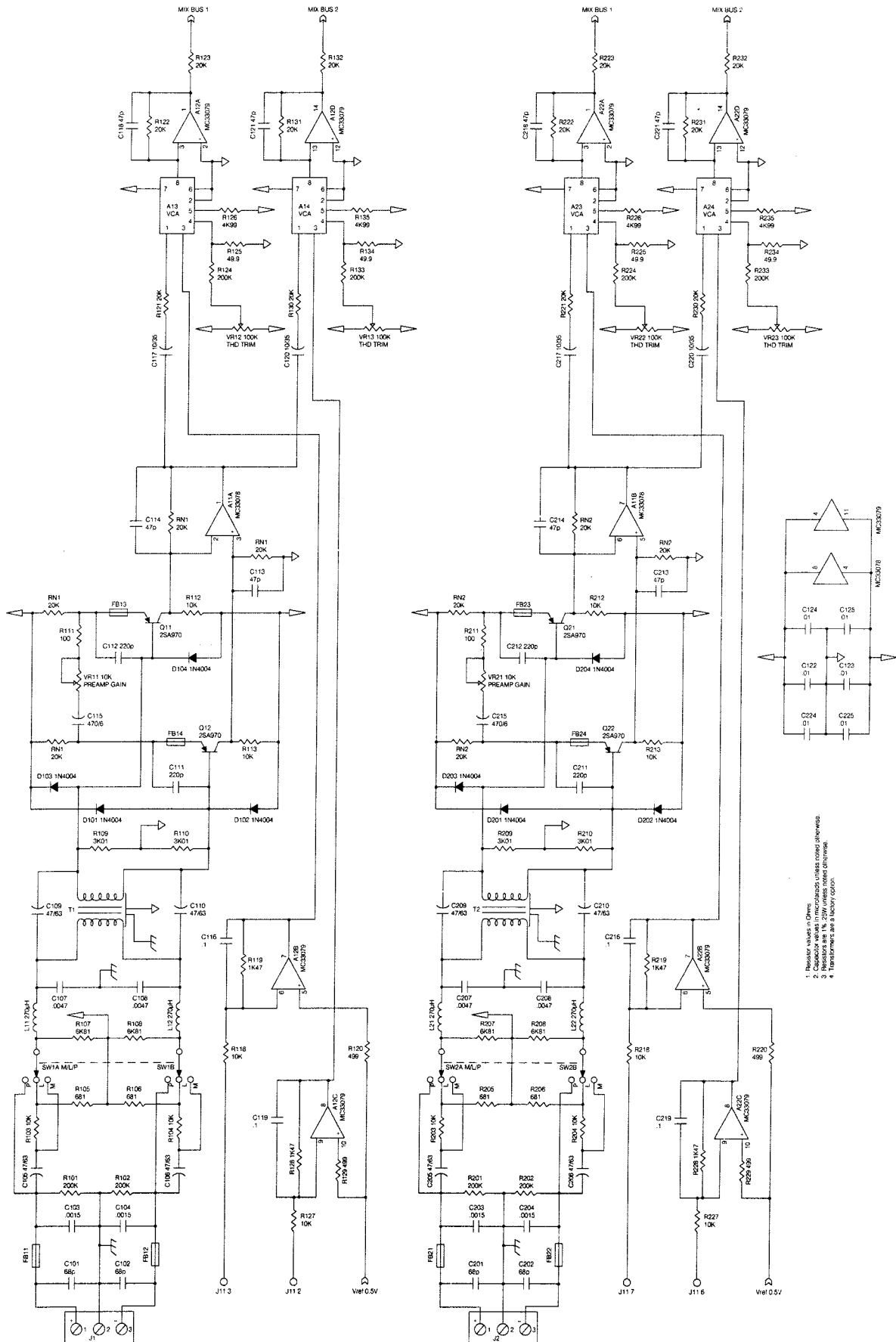
<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>	<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>
C95	100103	Cap .01μF 50V 10% Ceramic	C751	100200	Cap 20pF 50V 10% Ceramic
C96	100103	Cap .01μF 50V 10% Ceramic	C752	161150	Cap 15μF 25V 10% Tantalum
C97	100103	Cap .01μF 50V 10% Ceramic	C753	122100	Cap 10μF 35V Electrolytic
C98	122100	Cap 10μF 35V Electrolytic	C754	100200	Cap 20pF 50V 10% Ceramic
C99	100331	Cap 330pF 50V 10% Ceramic	C755	161150	Cap 15μF 25V 10% Tantalum
C100	100150	Cap 15pF 50V 10% Ceramic	C802	123471	Cap 470μF 50V Electrolytic
C101	100332	Cap .0033μF 50V 10% Ceramic	C803	123471	Cap 470μF 50V Electrolytic
C102	100102	Cap .001μF 50V 10% Ceramic	C804	100104	Cap .1μF 50V 10% Ceramic
C103	100103	Cap .01μF 50V 10% Ceramic	C805	100104	Cap .1μF 50V 10% Ceramic
C104	100103	Cap .01μF 50V 10% Ceramic	C806	123100	Cap 10μF 50V Electrolytic
C105	100103	Cap .01μF 50V 10% Ceramic	C807	123100	Cap 10μF 50V Electrolytic
C106	121101	Cap 100μF 25V Electrolytic	C808	123100	Cap 10μF 50V Electrolytic
C707	100101	Cap 100pF 50V 10% Ceramic	C809	123100	Cap 10μF 50V Electrolytic
C708	100101	Cap 100pF 50V 10% Ceramic	C810	122470	Cap 47μF 35V Electrolytic
C709	100101	Cap 100pF 50V 10% Ceramic	C811	122470	Cap 47μF 35V Electrolytic
C710	129470	Cap 47μF 25V Electrolytic NP	C812	100103	Cap .01μF 50V 10% Ceramic
C711	129470	Cap 47μF 25V Electrolytic NP	C813	100103	Cap .01μF 50V 10% Ceramic
C712	100102	Cap .001μF 50V 10% Ceramic	C814	100104	Cap .1μF 50V 10% Ceramic
C713	100102	Cap .001μF 50V 10% Ceramic	C815	100104	Cap .1μF 50V 10% Ceramic
C714	100101	Cap 100pF 50V 10% Ceramic	C816	122101	Cap 100μF 35V Electrolytic
C715	100101	Cap 100pF 50V 10% Ceramic	C817	122101	Cap 100μF 35V Electrolytic
C716	100101	Cap 100pF 50V 10% Ceramic	C818	125101	Cap 100μF 100V Electrolytic
C717	129470	Cap 47μF 25V Electrolytic NP	C819	100103	Cap .01μF 50V 10% Ceramic
C718	129470	Cap 47μF 25V Electrolytic NP	C820	125101	Cap 100μF 100V Electrolytic
C719	100102	Cap .001μF 50V 10% Ceramic	C821	124470	Cap 47μF 63V Electrolytic
C720	100102	Cap .001μF 50V 10% Ceramic	C822	121101	Cap 100μF 25V Electrolytic
C721	100101	Cap 100pF 50V 10% Ceramic	C823	100103	Cap .01μF 50V 10% Ceramic
C722	100101	Cap 100pF 50V 10% Ceramic	C920	101560	Cap 56pF 50V NPO Ceramic
C723	100101	Cap 100pF 50V 10% Ceramic	C921	101560	Cap 56pF 50V NPO Ceramic
C724	129470	Cap 47μF 25V Electrolytic NP	C922	100204	Cap .2μF 50V 10% Ceramic
C725	129470	Cap 47μF 25V Electrolytic NP	C923	101200	Cap 20pF 50V NPO Ceramic
C726	100102	Cap .001μF 50V 10% Ceramic	C924	101200	Cap 20pF 50V NPO Ceramic
C727	100102	Cap .001μF 50V 10% Ceramic	C926	100103	Cap .01μF 50V 10% Ceramic
C728	100101	Cap 100pF 50V 10% Ceramic	C927	100103	Cap .01μF 50V 10% Ceramic
C729	100101	Cap 100pF 50V 10% Ceramic	C928	100103	Cap .01μF 50V 10% Ceramic
C730	100101	Cap 100pF 50V 10% Ceramic	C929	100103	Cap .01μF 50V 10% Ceramic
C731	129470	Cap 47μF 25V Electrolytic NP	C930	100103	Cap .01μF 50V 10% Ceramic
C732	129470	Cap 47μF 25V Electrolytic NP	C931	100103	Cap .01μF 50V 10% Ceramic
C733	100102	Cap .001μF 50V 10% Ceramic	C932	100103	Cap .01μF 50V 10% Ceramic
C734	100102	Cap .001μF 50V 10% Ceramic	C933	100103	Cap .01μF 50V 10% Ceramic
C735	100103	Cap .01μF 50V 10% Ceramic	C934	100104	Cap .1μF 50V 10% Ceramic
C736	100103	Cap .01μF 50V 10% Ceramic	C935	122100	Cap 10μF 35V Electrolytic
C737	100103	Cap .01μF 50V 10% Ceramic			
C738	100103	Cap .01μF 50V 10% Ceramic	R91	506810	681 ohm .25W 1% MF
C739	100103	Cap .01μF 50V 10% Ceramic	R92	503011	3.01 Kohm .25W 1% MF
C740	100103	Cap .01μF 50V 10% Ceramic	R93	504990	499 ohm .25W 1% MF
C741	100103	Cap .01μF 50V 10% Ceramic	R94	504021	4.02 Kohm .25W 1% MF
C742	100103	Cap .01μF 50V 10% Ceramic	R95	504990	499 ohm .25W 1% MF
C743	100103	Cap .01μF 50V 10% Ceramic	R96	502002	20 Kohm .25W 1% MF
C744	100103	Cap .01μF 50V 10% Ceramic	R99	502002	20 Kohm .25W 1% MF
C750	122100	Cap 10μF 35V Electrolytic	R100	500000	Jumper 0 Ohm

## SMX/AMB Output Module 462002D Parts List

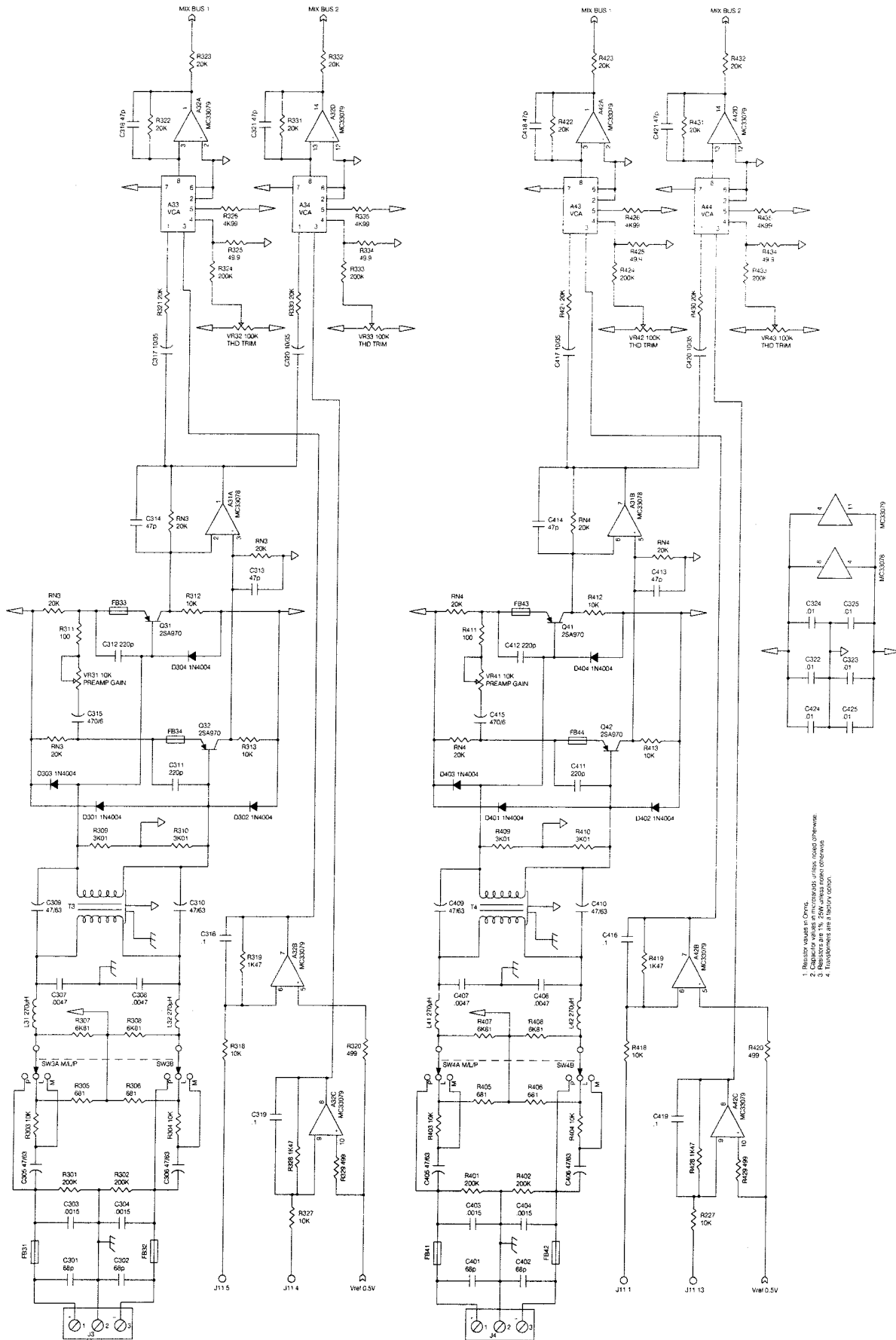
<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>	<u>Desig.</u>	<u>IQPN</u>	<u>Description</u>
R101	502002	20 Kohm .25W 1% MF	R809	501002	10 Kohm .25W 1% MF
R102	502002	20 Kohm .25W 1% MF	R810	520102	1 Kohm .25W 5% CF
R103	501004	1 Mohm .25W 1% MF	R814	532220	22 ohm 2W 5%
R104	501001	1 Kohm .25W 1% MF	R920	501005	10 Mohm .1W 5% MF
R105	502001	2 Kohm .25W 1% MF	R921	501003	100 Kohm .25W 1% MF
R106	501001	1 Kohm .25W 1% MF	R922	501005	10 Mohm .1W 5% MF
R107	501000	100 ohm .25W 1% MF	R923	501002	10 Kohm .25W 1% MF
R108	501501	1.5 Kohm .25W 1% MF	R925	506810	681 ohm .25W 1% MF
R109	502001	2 Kohm .25W 1% MF	R926	501002	10 Kohm .25W 1% MF
R110	551000	100 ohm .25W 5% 3300PPM/°C	R927	502491	2.49 Kohm .25W 1% MF
R111	501004	1 Mohm .25W 1% MF	R928	502491	2.49 Kohm .25W 1% MF
R112	501002	10 Kohm .25W 1% MF	R929	502002	20 Kohm .25W 1% MF
R113	501001	1 Kohm .25W 1% MF	R930	503011	3.01 Kohm .25W 1% MF
R115	502002	20 Kohm .25W 1% MF	R931	501501	1.5 Kohm .25W 1% MF
R709	504999	49.9 Kohm .25W 1% MF	R933	520102	1 Kohm .25W 5% CF
R710	504999	49.9 Kohm .25W 1% MF	R935	503011	3.01 Kohm .25W 1% MF
R711	501003	100 Kohm .25W 1% MF	R936	503011	3.01 Kohm .25W 1% MF
R712	501003	100 Kohm .25W 1% MF	R937	503011	3.01 Kohm .25W 1% MF
R719	504999	49.9 Kohm .25W 1% MF	R939	502491	2.49 Kohm .25W 1% MF
R720	504999	49.9 Kohm .25W 1% MF	R942	501001	1 Kohm .25W 1% MF
R721	501003	100 Kohm .25W 1% MF	R943	504993	499 Kohm .25W 1% MF
R722	501003	100 Kohm .25W 1% MF	R944	502001	2 Kohm .25W 1% MF
R727	504999	49.9 Kohm .25W 1% MF	R945	501001	1 Kohm .25W 1% MF
R728	504999	49.9 Kohm .25W 1% MF	R946	502001	2 Kohm .25W 1% MF
R729	501003	100 Kohm .25W 1% MF	R947	501002	10 Kohm .25W 1% MF
R730	501003	100 Kohm .25W 1% MF	R948	501003	100 Kohm .25W 1% MF
R737	504999	49.9 Kohm .25W 1% MF	R949	501003	100 Kohm .25W 1% MF
R738	504999	49.9 Kohm .25W 1% MF	R950	504993	499 Kohm .25W 1% MF
R739	501003	100 Kohm .25W 1% MF	R951	501002	10 Kohm .25W 1% MF
R740	501003	100 Kohm .25W 1% MF	R952	501002	10 Kohm .25W 1% MF
R741	501002	10 Kohm .25W 1% MF	R953	501002	10 Kohm .25W 1% MF
R742	501002	10 Kohm .25W 1% MF	R954	501001	1 Kohm .25W 1% MF
R750	504993	499 Kohm .25W 1% MF			
R751	504991	4.99 Kohm .25W 1% MF	RN21	511103	10 Kohm 1% 4SIP Network
R752	501002	10 Kohm .25W 1% MF	RN22	511103	10 Kohm 1% 4SIP Network
R753	504999	49.9 Kohm .25W 1% MF	RN23	511103	10 Kohm 1% 4SIP Network
R754	504993	499 Kohm .25W 1% MF	RN24	511103	10 Kohm 1% 4SIP Network
R755	504991	4.99 Kohm .25W 1% MF	RN25	513203	20 Kohm 1% 3SIP Network
R756	501002	10 Kohm .25W 1% MF	RN26	513203	20 Kohm 1% 3SIP Network
R757	504999	49.9 Kohm .25W 1% MF	RN27	511103	10 Kohm 1% 4SIP Network
R758	505621	5.62 Kohm .25W 1% MF	RN28	511103	10 Kohm 1% 4SIP Network
R759	505621	5.62 Kohm .25W 1% MF	RN91	511103	10 Kohm 1% 4SIP Network
R801	501102	11 Kohm .25W 1% MF	RN92	511103	10 Kohm 1% 4SIP Network
R802	501102	11 Kohm .25W 1% MF	RN94	511203	20 Kohm 1% 4SIP Network
R803	501001	1 Kohm .25W 1% MF			
R804	501001	1 Kohm .25W 1% MF	VR71	560104	100 Kohm Trim Pot
R805	501002	10 Kohm .25W 1% MF	VR72	560104	100 Kohm Trim Pot
R806	501002	10 Kohm .25W 1% MF	VR91	560102	1 Kohm Trim Pot
R807	507501	7.5 Kohm .25W 1% MF	VR92	560103	10 Kohm Trim Pot
R808	501003	100 Kohm .25W 1% MF	VR93	560102	1 Kohm Trim Pot

## SMX/AMB Output Module 462002D Parts List

<b>Desig.</b>	<b>IQPN</b>	<b>Description</b>
B1	050136	Battery
SW91	651106	Sw SPST DIP 6 Pos (Baud)
SW92	651108	Sw SPST DIP 8 Pos (Address)
SW94	652200	Sw 2 Pos Slide (RS232/422)

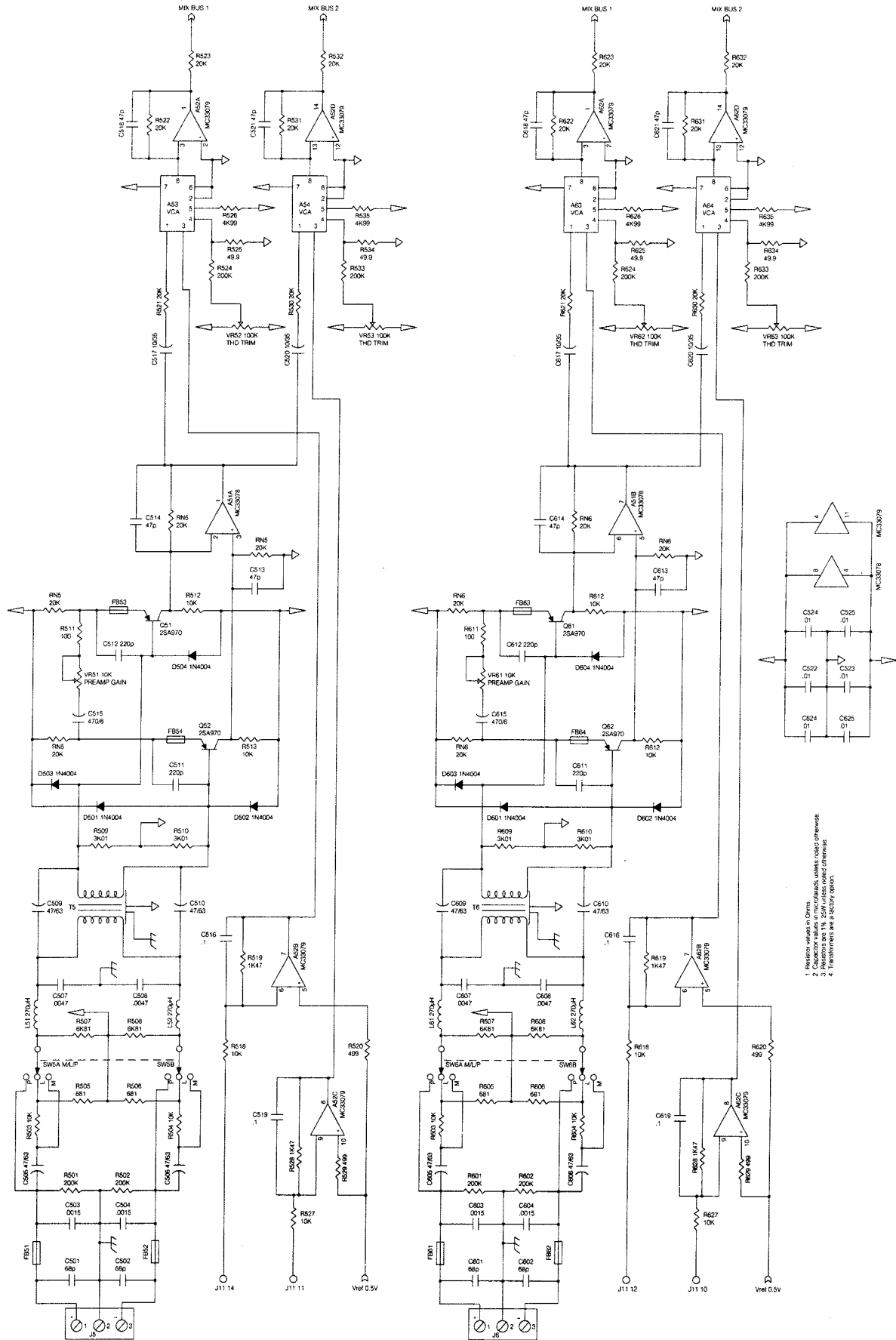


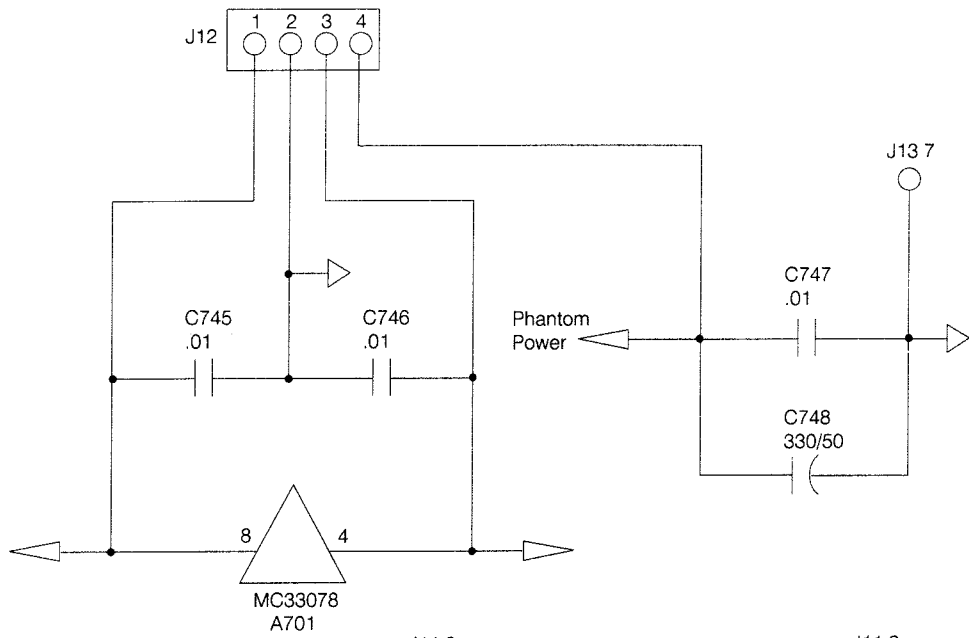
- 1. Resistor values in Ohms
- 2. Resistor values in Kiloohms
- 3. Resistor values in Megaohms
- 4. Transformer are a factory option



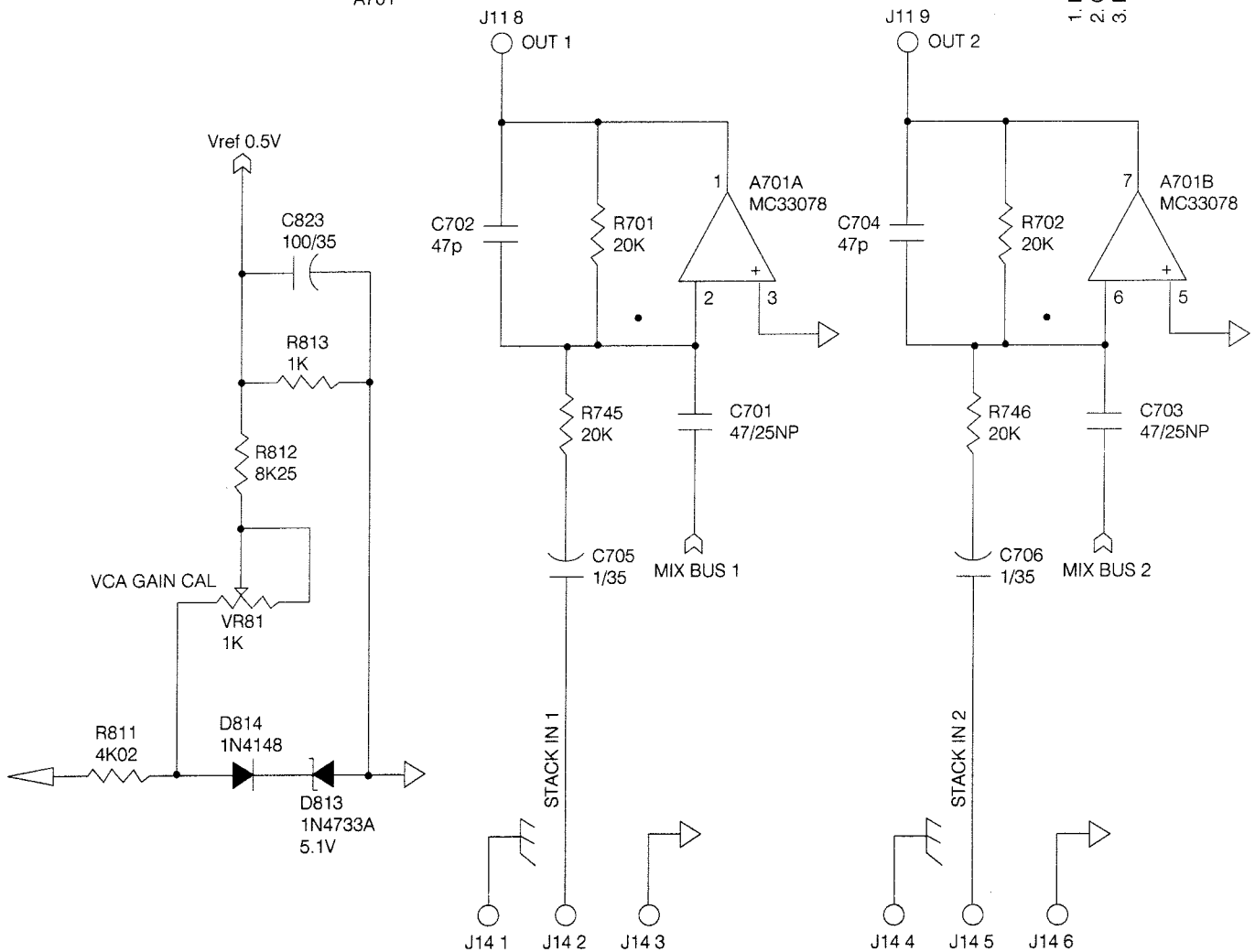
- 1. Resistor values in Ohms.
- 2. Capacitor values in microfarads, unless noted otherwise.
- 3. Transformer turns ratio.
- 4. Transformer pin 1 (primary) location.

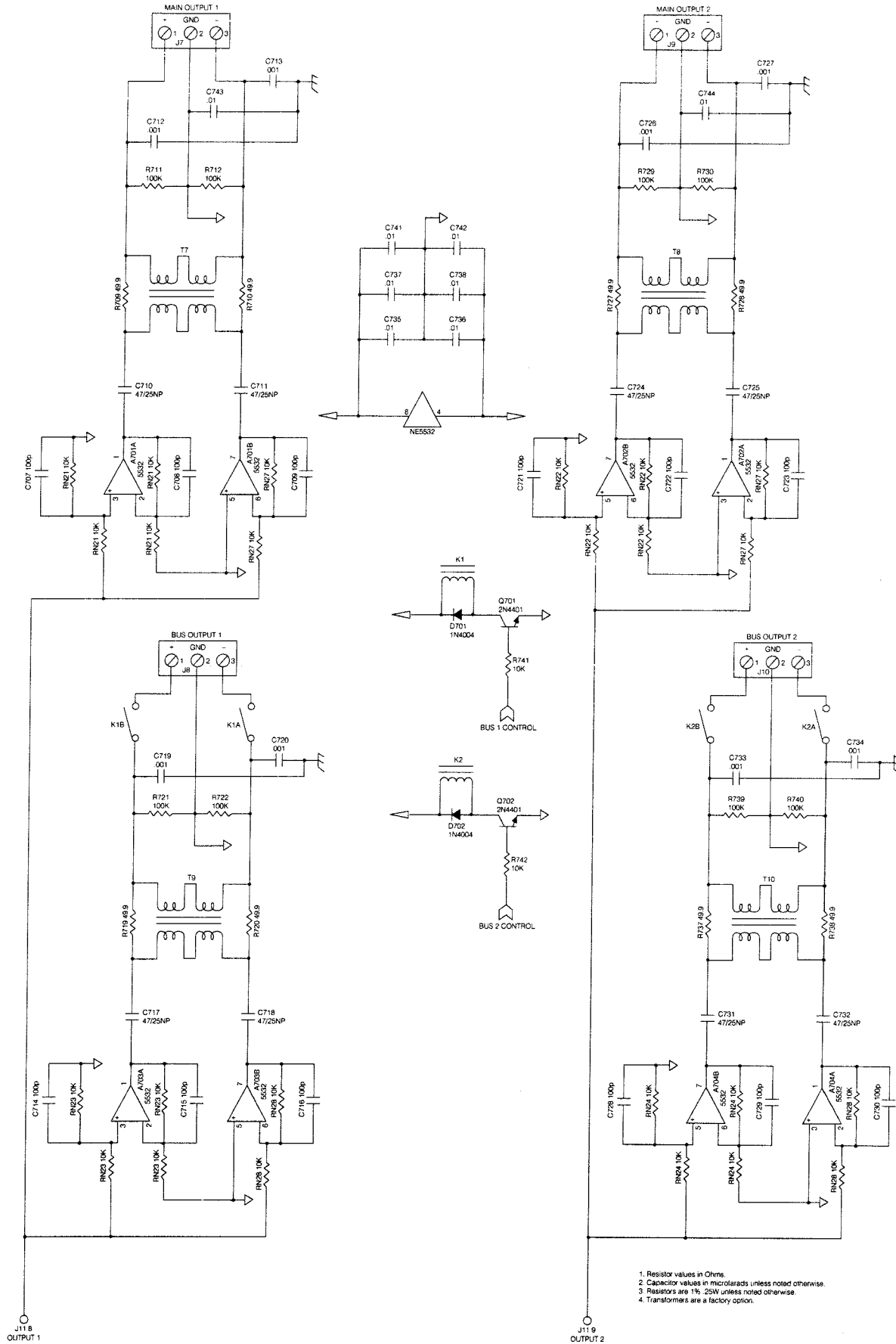
MPX Audio Inputs 3 and 4 Schematic



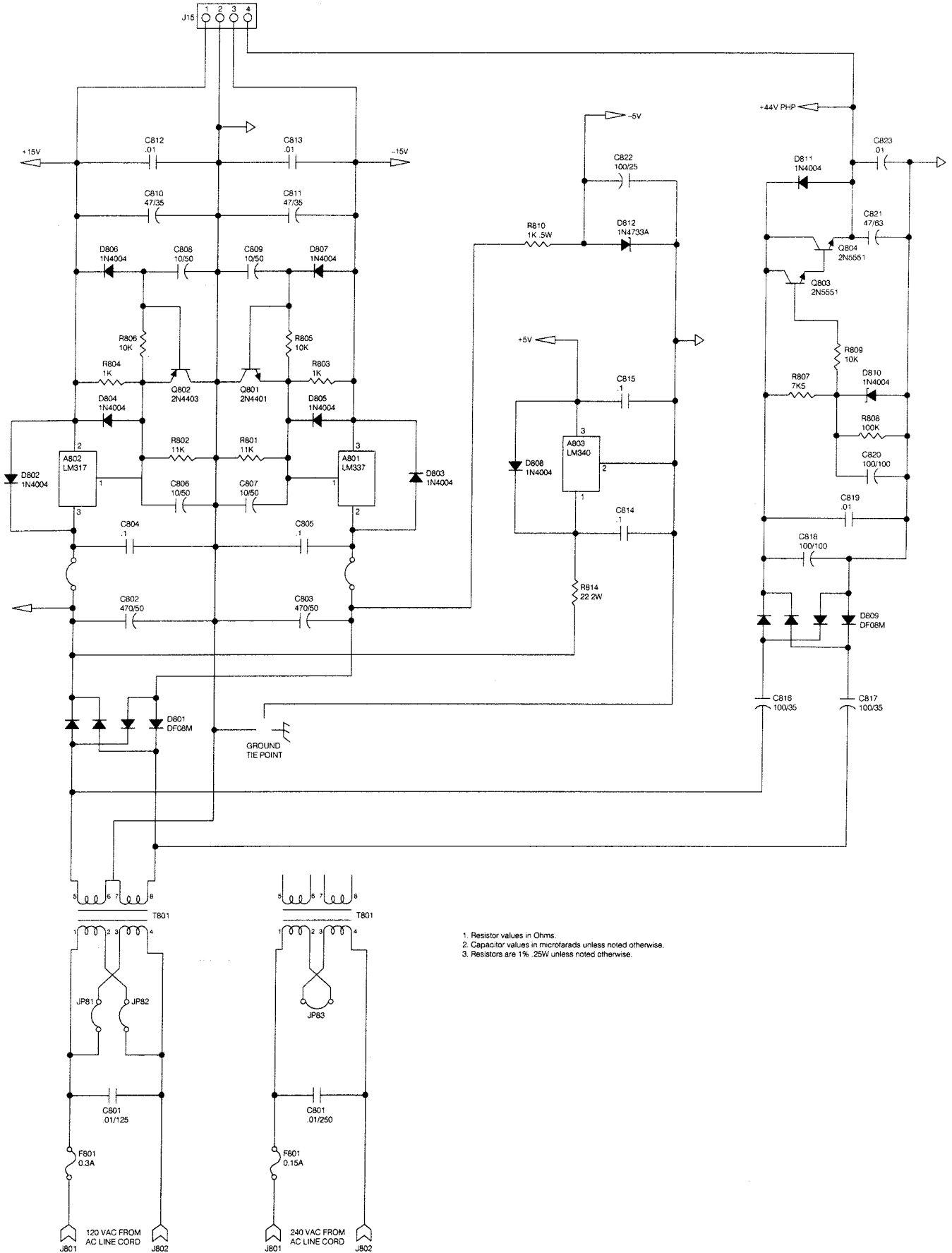


- 1. Resistor values in Ohms.
- 2. Capacitor values in microfarads unless noted otherwise.
- 3. Resistors are 1% .25W unless noted otherwise.



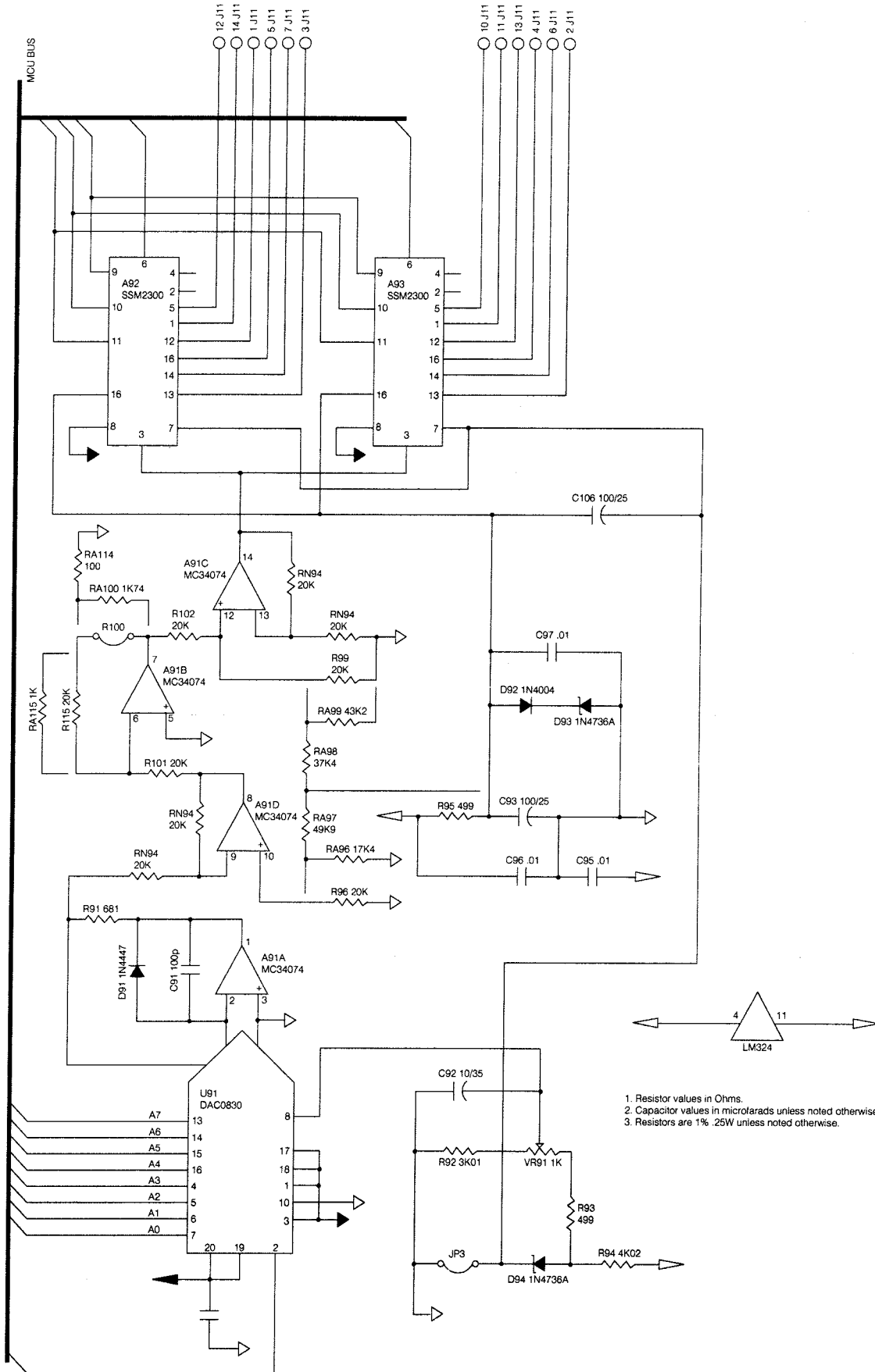




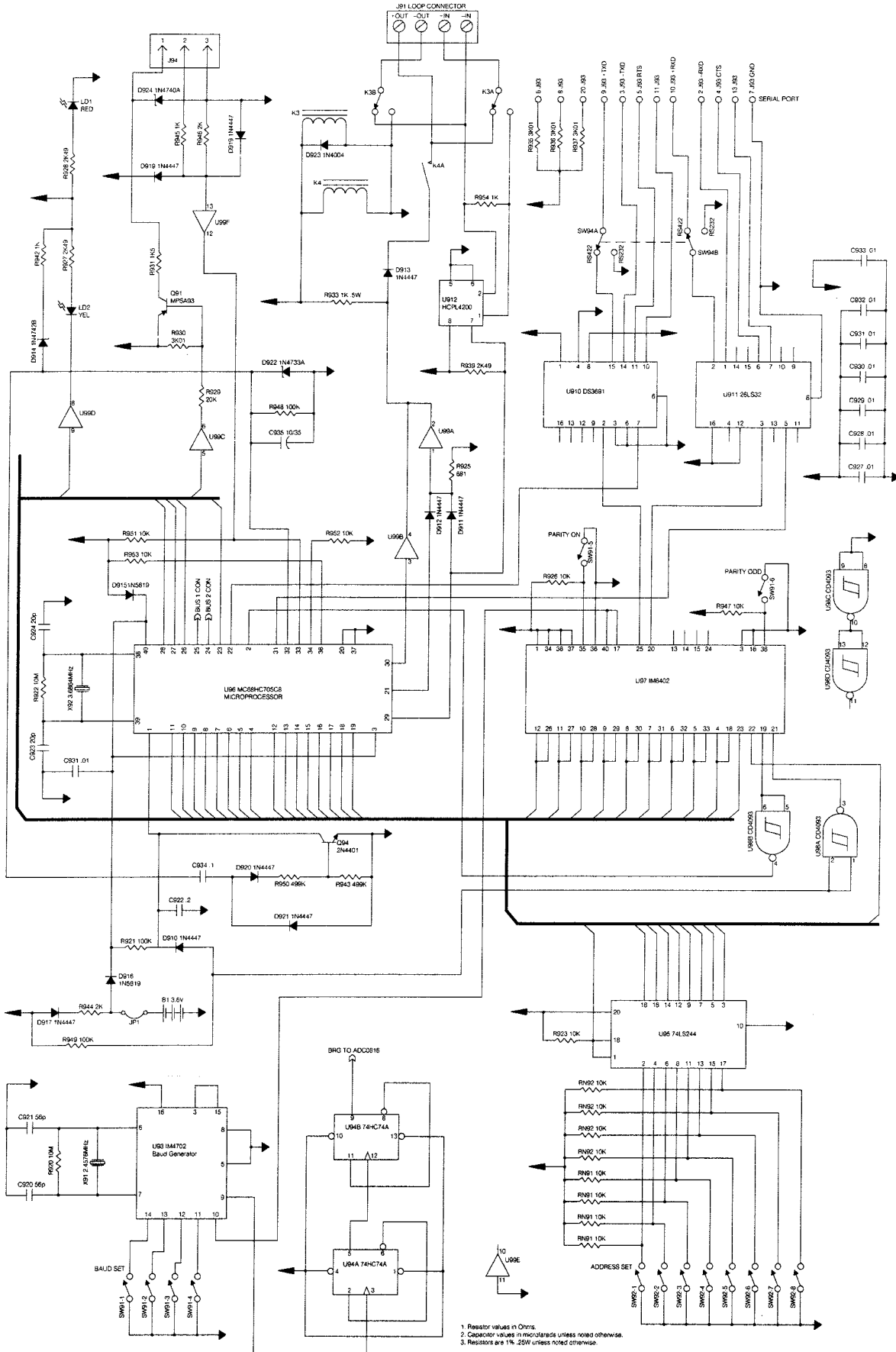


- 1. Resistor values in Ohms.
- 2. Capacitor values in microfarads unless noted otherwise.
- 3. Resistors are 1% .25W unless noted otherwise.

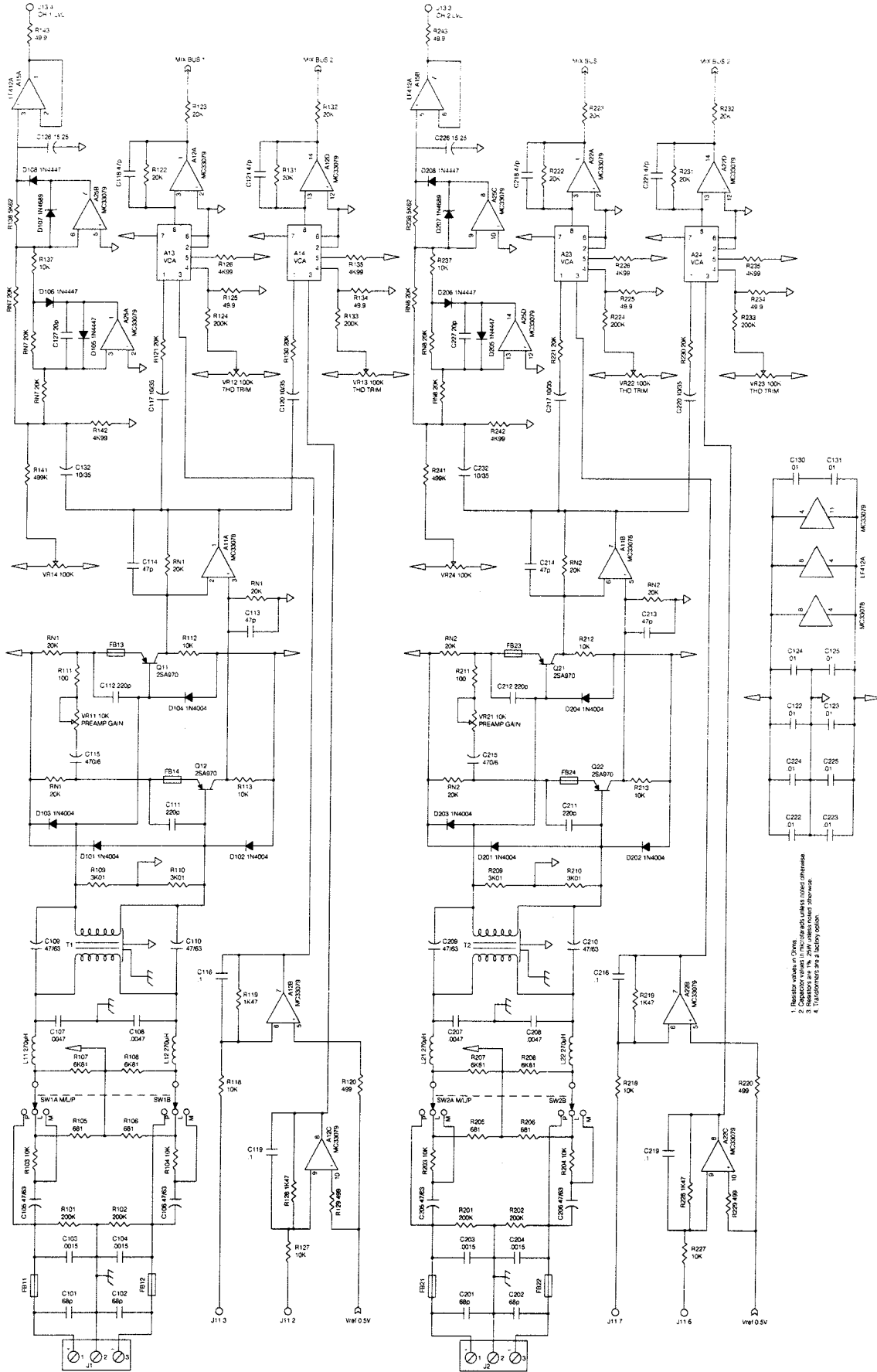
MPX Power Supply Schematic

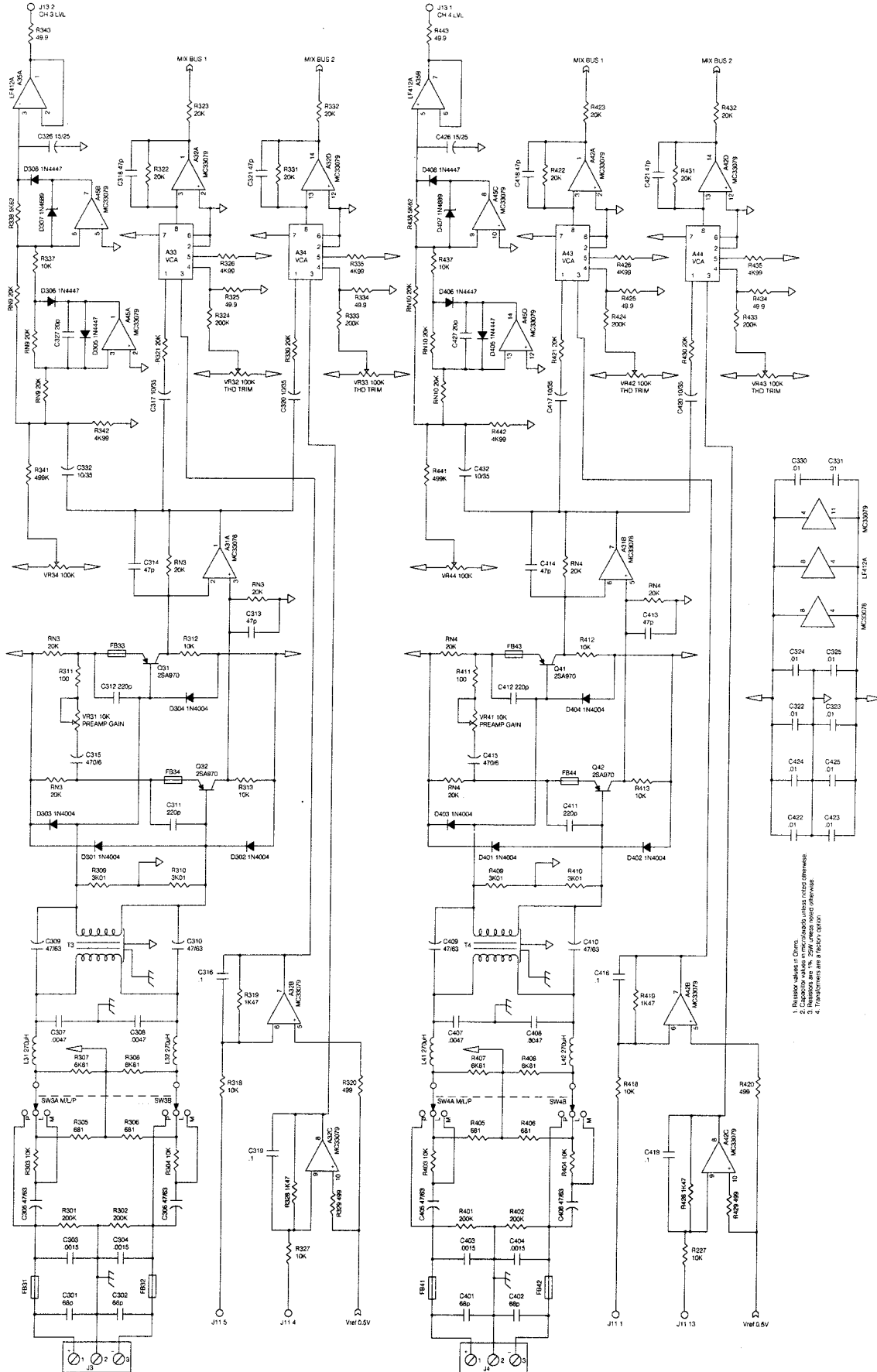


- 1. Resistor values in Ohms.
- 2. Capacitor values in microfarads unless noted otherwise.
- 3. Resistors are 1% .25W unless noted otherwise.

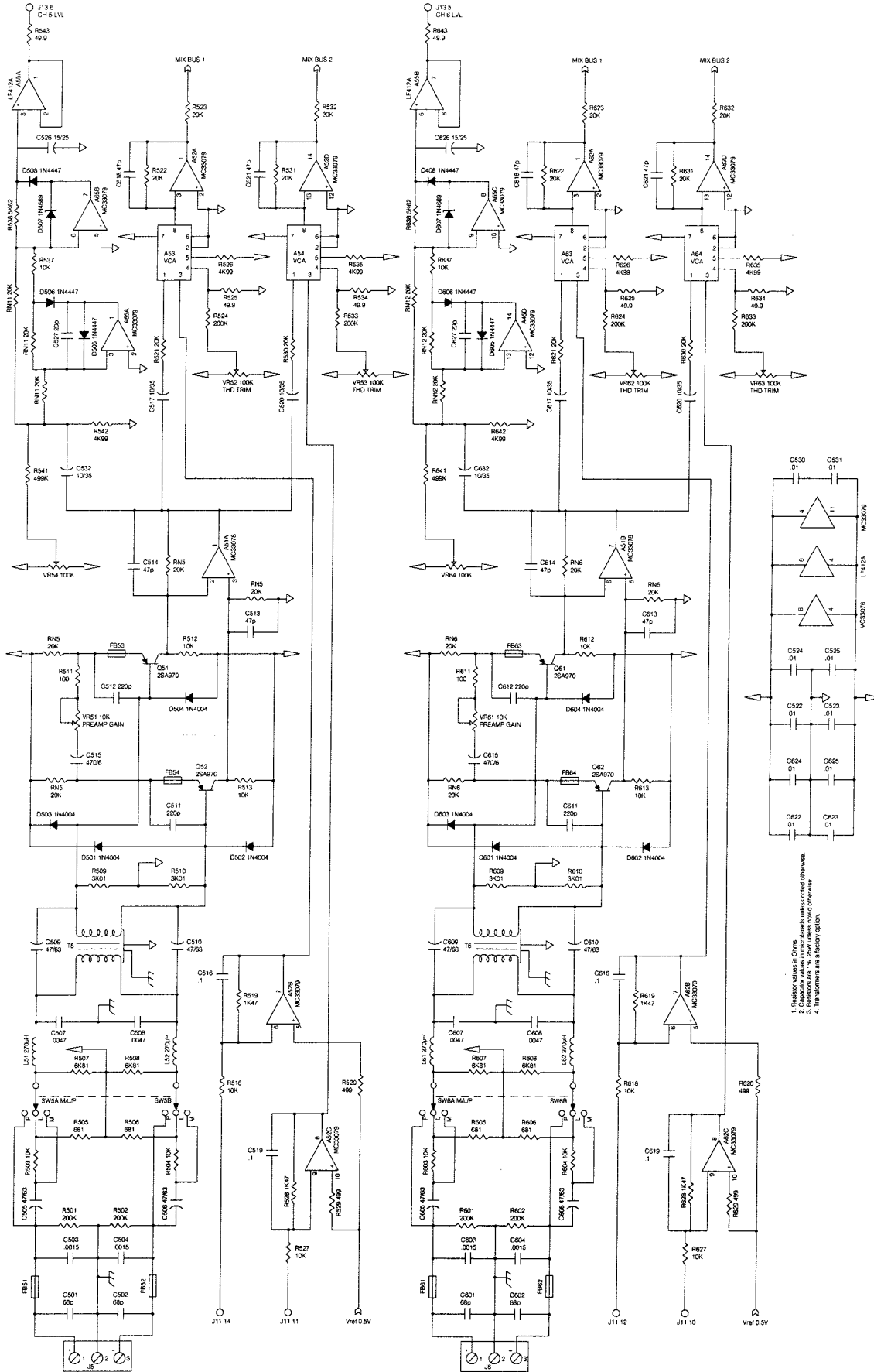


MPX Processor and Communication Schematic

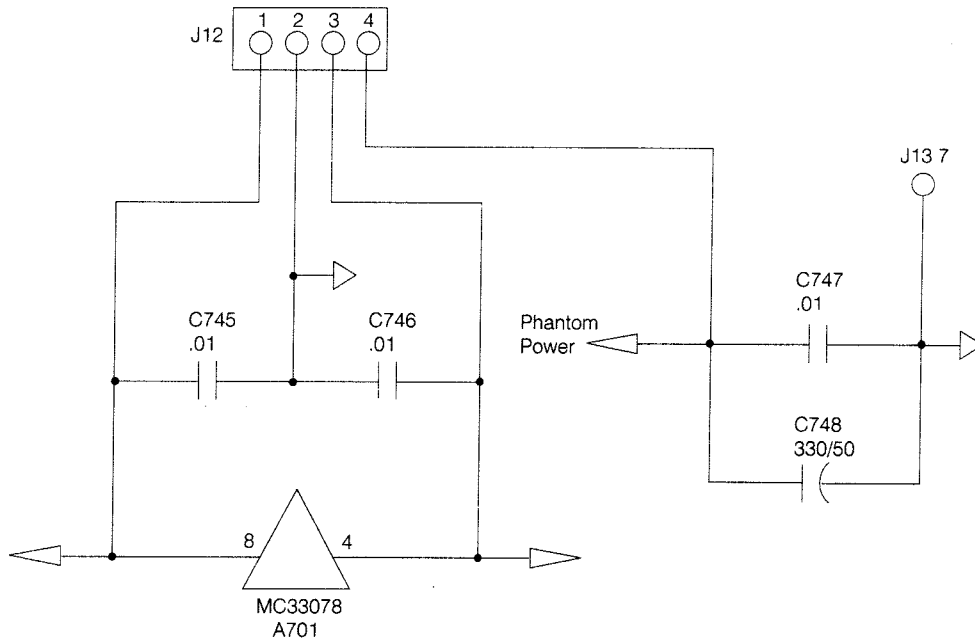




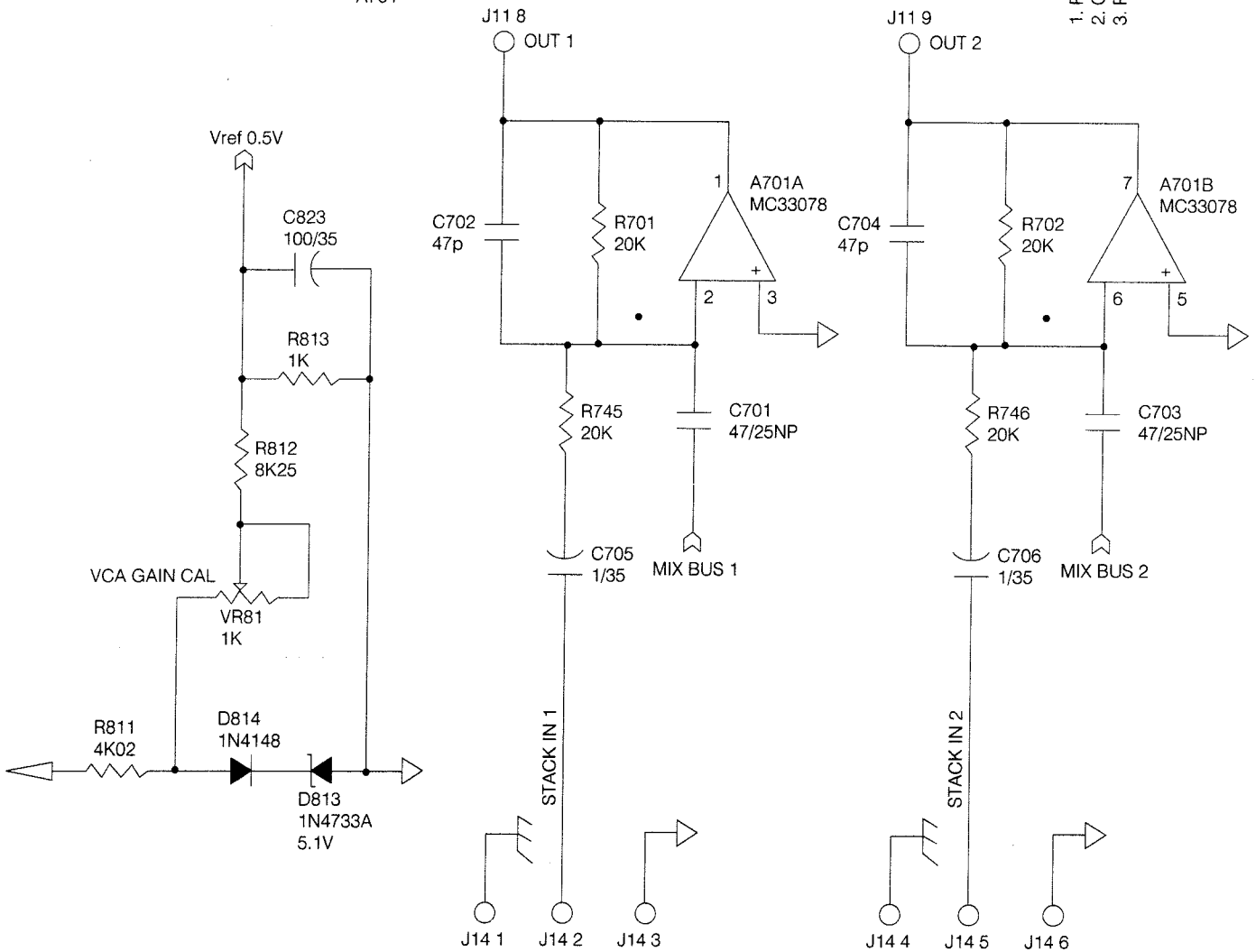
SMX/AMB Audio Inputs 3 and 4 Schematic



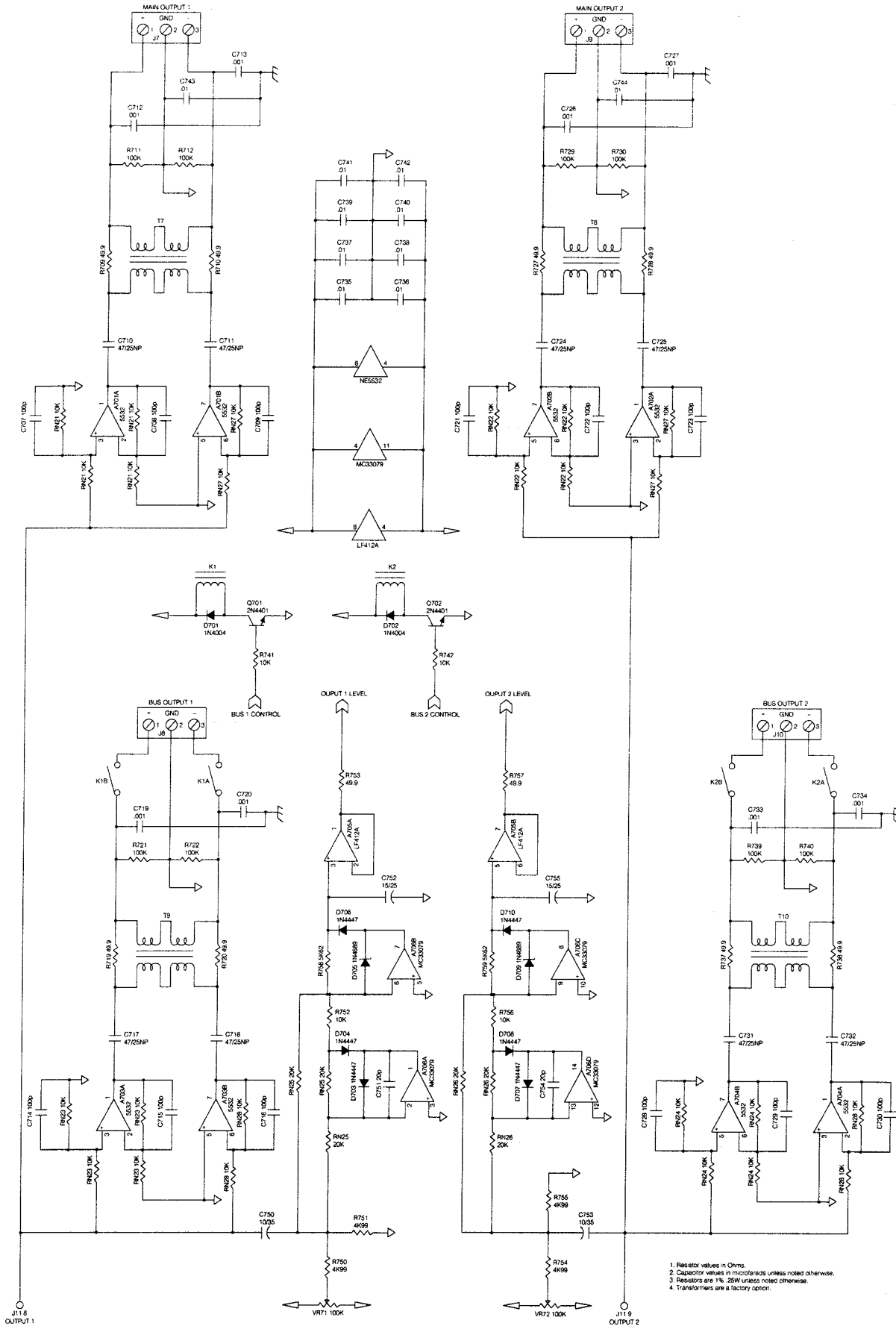
1. Resistor values in Ohms  
 2. Resistor values in Kilo Ohms  
 3. Resistor values in Mega Ohms  
 4. Transformers are a factory option



1. Resistor values in Ohms.
2. Capacitor values in picofarads unless noted otherwise.
3. Resistors are 1% .25W unless noted otherwise.

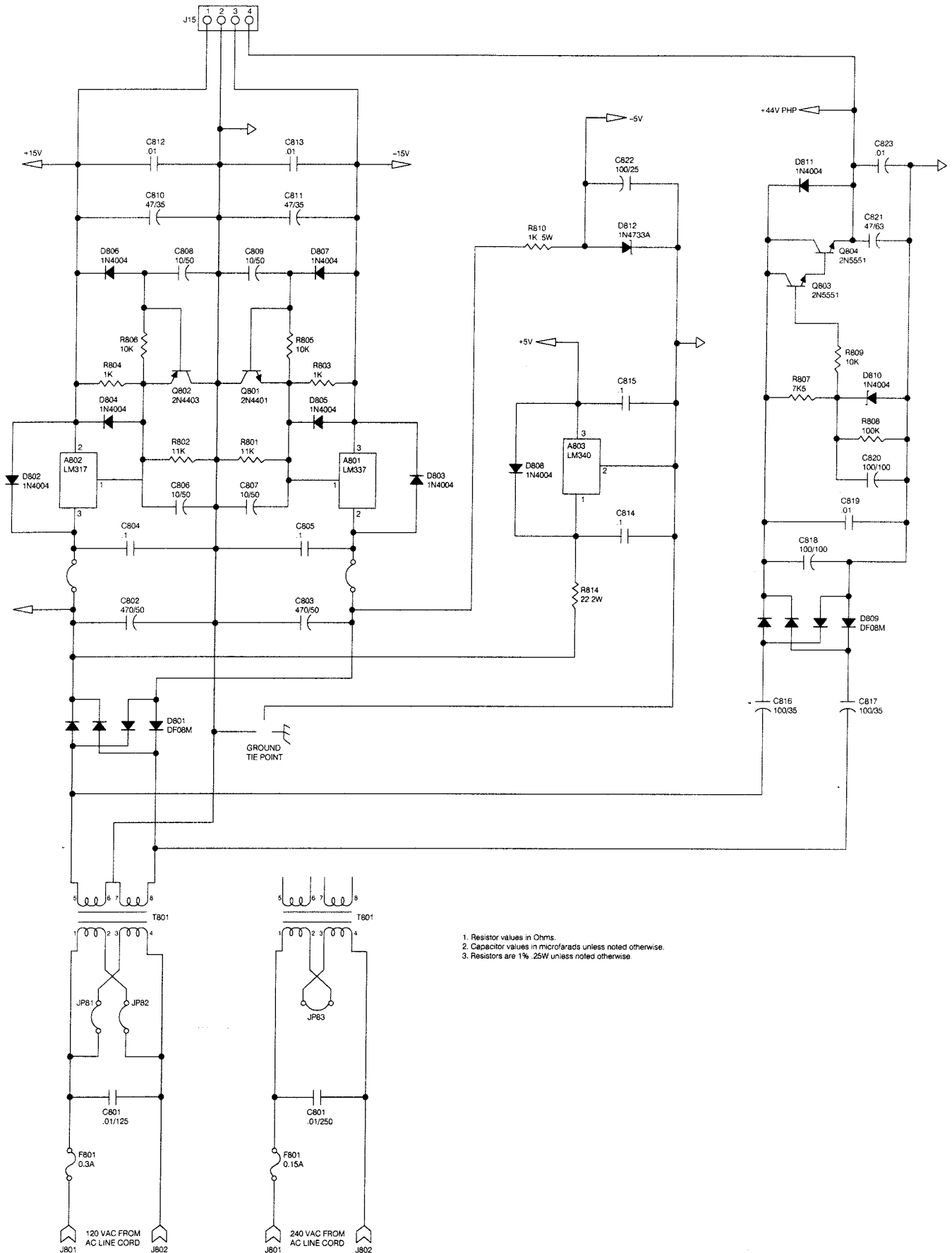


SMX/AMB VCA Gain Calibration and Stack Input Schematic



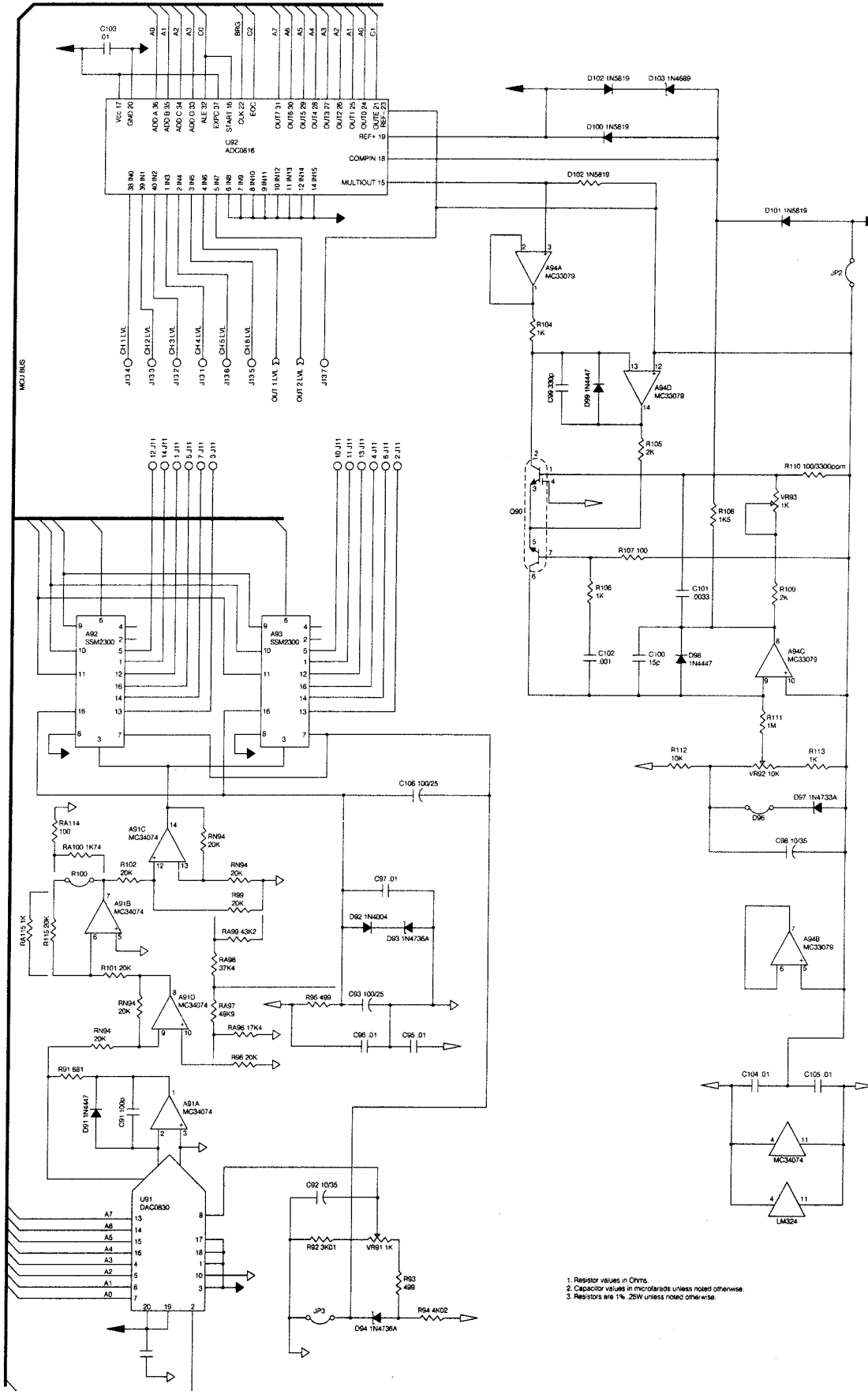
1. Resistor values in Ohms.
2. Capacitor values in microfarads unless noted otherwise.
3. Resistors are 1%, 25W unless noted otherwise.
4. Transformers are a factory option.



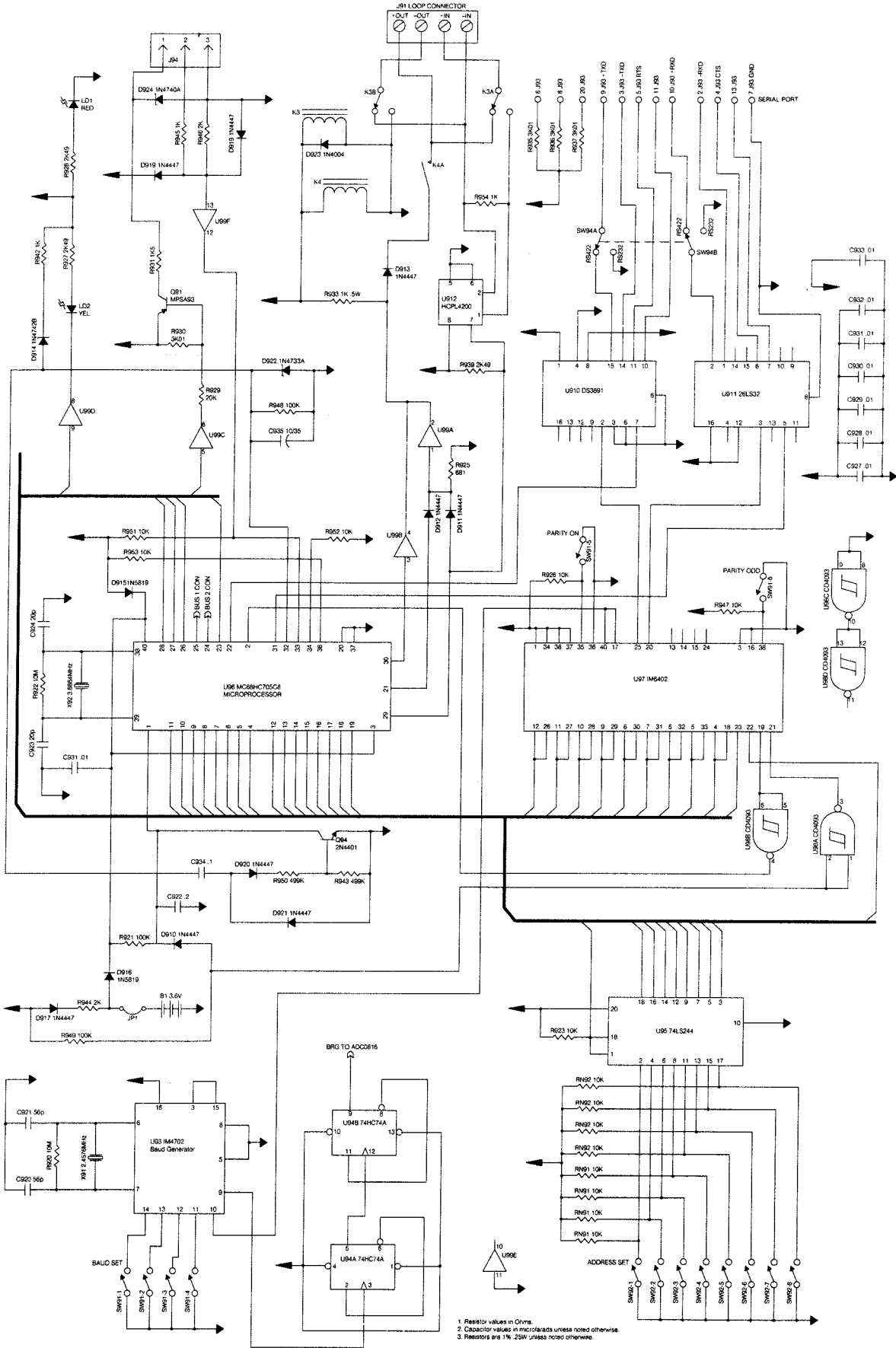


1. Resistor values in Ohms.
2. Capacitor values in microfarads unless noted otherwise.
3. Resistors are 1% .25W unless noted otherwise.

SMX/AMB Power Supply Schematic



1. Resistor values in Ohms.  
 2. Capacitor values in microfarads unless noted otherwise.  
 3. Resistors are 1% .25W unless noted otherwise.



1. Resistor values in Ohms.  
2. Capacitor values in microfarads unless noted otherwise.  
3. Resistors are 1% .25W unless noted otherwise.

## SMX-6T Transformer Isolated Version

### SMX-6T

The SMX-6T is a special version of the SMX-6 with transformer isolation at each of the six main inputs, both main outputs, and both bus outputs.

Although transformer isolated versions of the AMB-5 and MPX-6 are not available as standard models from Crown, they could be transformer isolated by adding the listed transformers and removing the other listed parts.

The parts listed in this section are included for support of the SMX-6T. These lists may also be used to modify a standard SMX-6, MPX-6, or AMB-5 for isolation.

Refer to the applicable audio input and output schematics for circuit locations.

### SMX-6T Input Module Adds:

T1	702200	XFMR MIC IN 1:1
T2	702200	XFMR MIC IN 1:1
T3	702200	XFMR MIC IN 1:1
T4	702200	XFMR MIC IN 1:1
T5	702200	XFMR MIC IN 1:1
T6	702200	XFMR MIC IN 1:1

### SMX-6T Output Module Adds:

T7	702600	XFMR AUDIO OUT 1:1
T8	702600	XFMR AUDIO OUT 1:1
T9	702600	XFMR AUDIO OUT 1:1
T10	702600	XFMR AUDIO OUT 1:1

### SMX-6T Input Module Deletes:

C109, C110, C209, C210, C309, C310, C409, C410, C509, C510, C609, C610

### SMX-6T Output Module Deletes:

R709, R710, R719, R720, R727, R728, R737, R738