

# **Service** *Manual*

**MODEL: AMX-120**



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Version 1.0

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## 1. Introduction

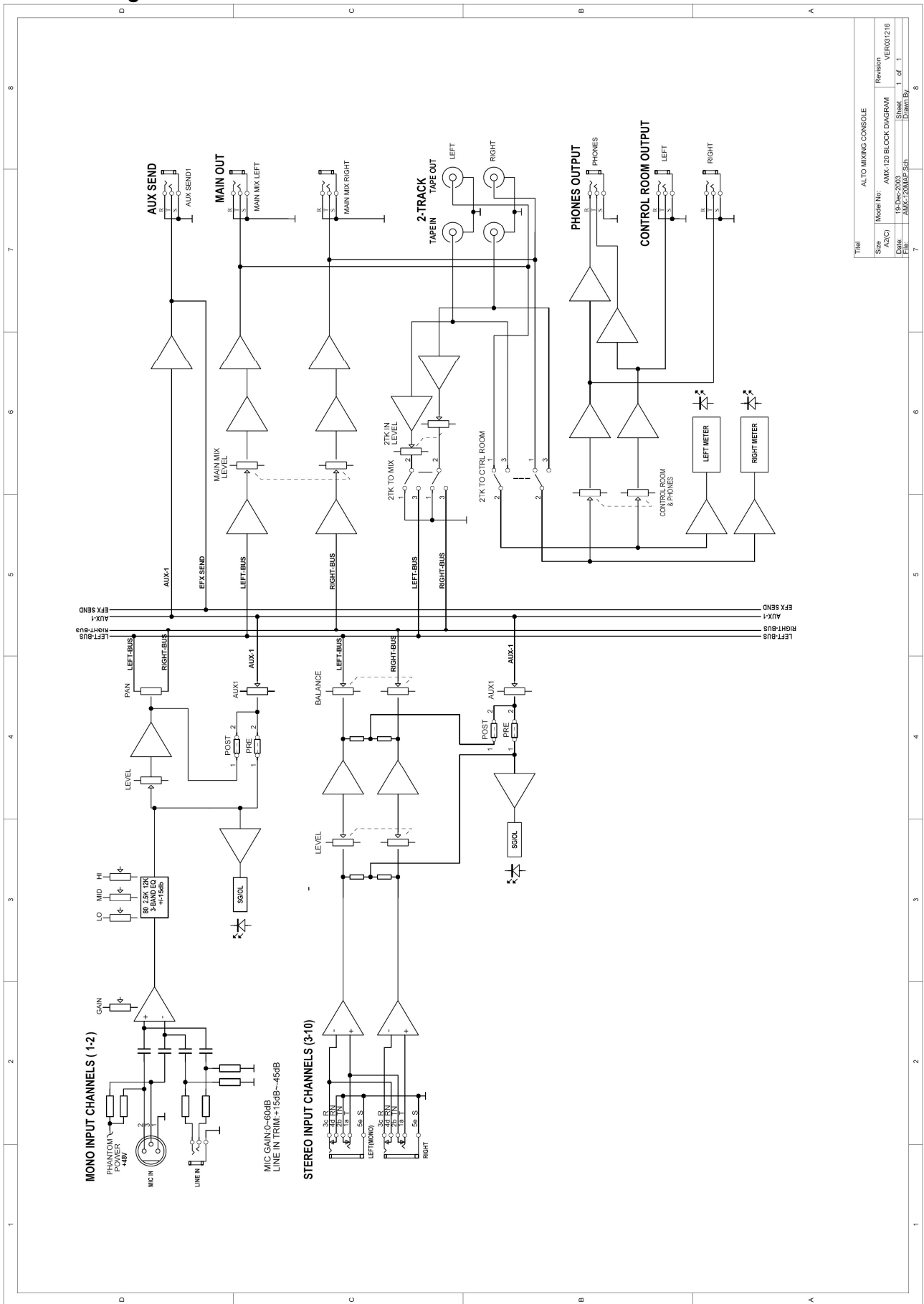
The AMX-120 is 2 mono MIC/LINE channels with MIC PREAMPS plus 8 stereo channels. Perfect for keyboards, MIDI equipment or other stereo sound sources and a 2-track input/output for recording and playback in a mixer small enough to carry in your board luggage. You can find great 3-band, mid-sweep equalizers in each channel plus switchable low-cut filters in the mono channels, AUX sends, phantom power and accurate peak LED and level meters Plus of course our ultra low noise circuitry and exceptional build quality.

- 2 MIC input channels with gold plated XLR and balanced Line inputs.
- 8 Stereo input channels with balanced TRS Jacks.
- Ultra-low noise discrete MIC Preamp with +48V Phantom power.
- 2 additional multi-functional Stereo Line Input.
- Extremely high headroom offering more dynamic range.
- Balanced input for highest signal integrity.
- Warm , natural 3-band EQ on each channels.
- Peak LED and switchable low-cut filter on each mono channel.
- Adjust the input sensitivity on each stereo channels.
- AUX Sends per channel for external effects and monitoring.
- Balanced TRS outputs, Control Room and Headphone Outputs.
- 2-Track Input assignable to Main Mix, Control Room / Headphone Outputs.
- Highly accurate 12 segment bar graph meters.
- Performance and excellent noise figures.
- Rugged construction ensures long life even under the most demanding conditions.
- Manufactured under ISO9001 certified management system.

## 2. Specification

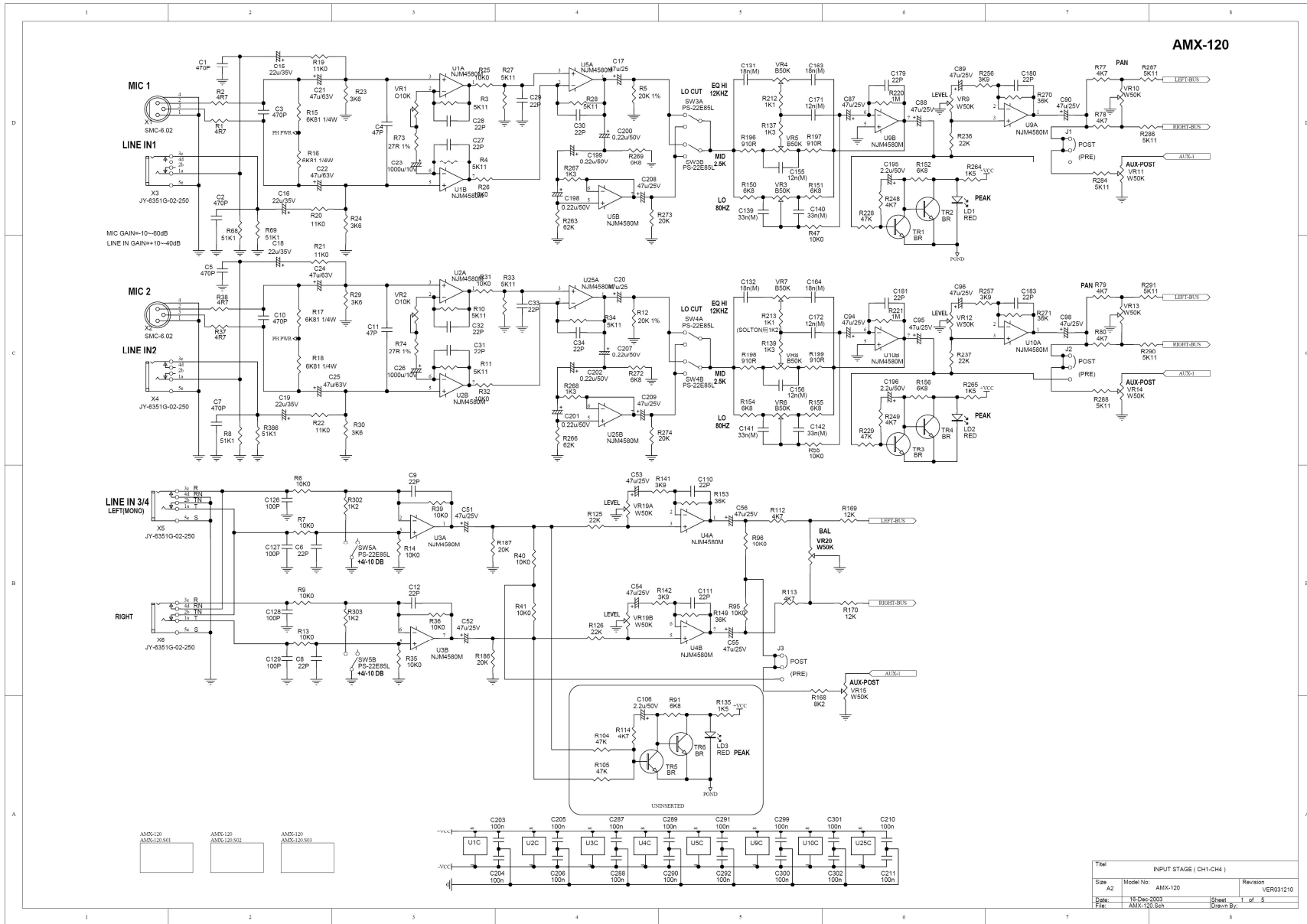
Mono input channels	Microphone input	Electronically balanced discrete input configuration
	Frequency response	10Hz to 55KHz $\pm$ 3dB
	Distortion (THD&N)	0.005% at +4dBu 1KHz
	Gain range	0dB to 60dB(MIC)
	SNR(Signal Noise Rated)	115dB
	Line input	Electronically balanced
	Frequency response	10Hz to 55KHz, $\pm$ 3dB
	Distortion (THD&N)	0.005% at +4dBu, 1KHz
	Sensitivity range	+15dBu to -45dBu
Stereo input channels	Line input	unbalanced
	Frequency response	10Hz to 55KHz $\pm$ 3dB
	Distortion (THD&N)	0.005% at +4dBu 1KHz
Impedance	Microphone input	1.4K ohm
	Channel insert return	2.5K ohm
	All other inputs	10Kohm or greater
	Tape out	1K ohm
	All other output	120 ohm
Equalization	Hi shelving	$\pm$ 15dB @ 12KHz
	Mid bell	$\pm$ 12dB @2.5KHz
	Low shelving	$\pm$ 15dB @80Hz
Main Mix Section	Noise (Bus noise )	Fader 0 dB, channels muted:-100.0dBr (ref.:+4dBu) Fader 0 dB, all input channels assigned and set to UNITY gain:-90dBr (ref.:+4dBu)
	Max output	+22dBu balanced XLR, +22dBu unbalanced, 1/4"
	AUX Return gain range	OFF to +20dB
	AUX Sends max out	+22dBu
Power supply (AC/AC Adapter)	Main voltage	USA/ Canada 100-120V~,60Hz Europe 210-230V~,50Hz U.K/Australia 240V~,50Hz
	Power Consumption	13.3watts
Physical	Dimension (W*D*H)	208mm X 250mm X33/43mm
	Net weight	1.65Kg without adapter

### 3. Block Diagram

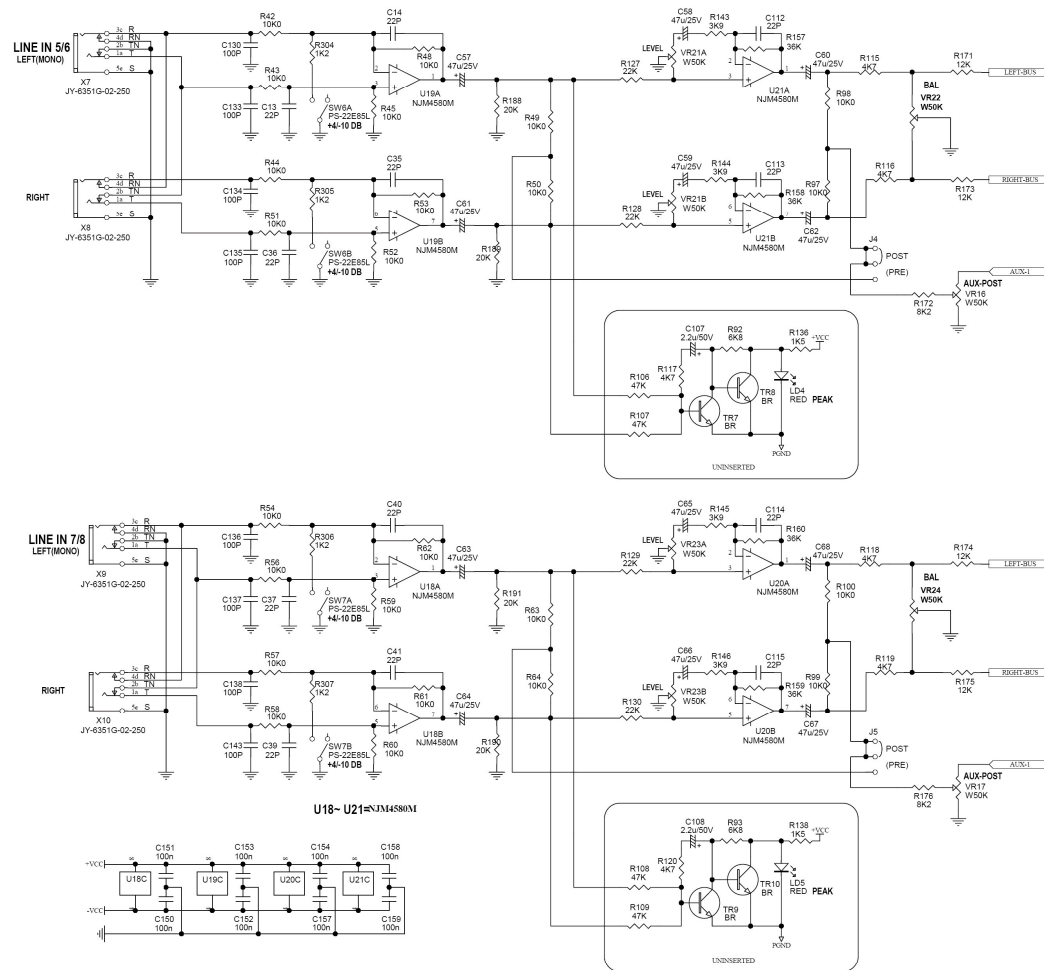


Title			
Model No.	AMX-120 BLOCK DIAGRAM	Revision	VER03.216
Size	A3(C)	Sheet	1 of 1
Drawn By	AMC/TAMP/SSJ	Drawn By	

# 4. Schematic Diagram

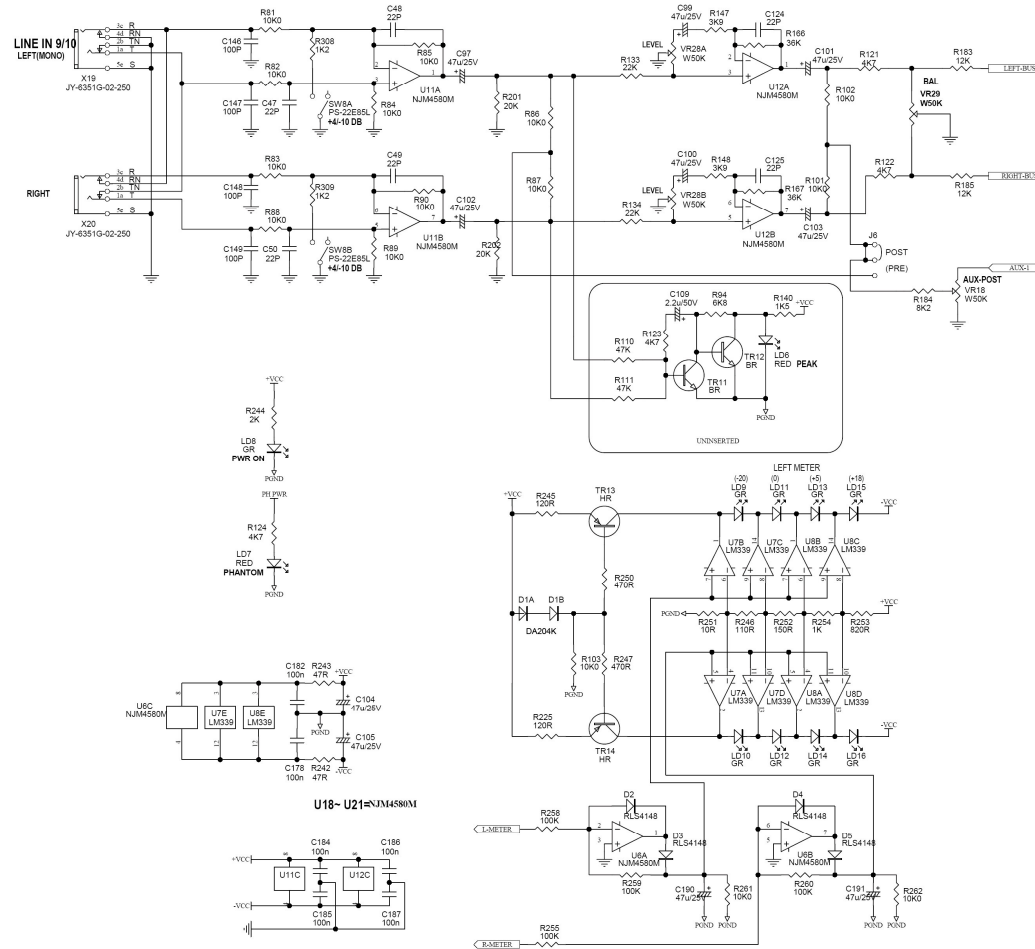


AMX-120



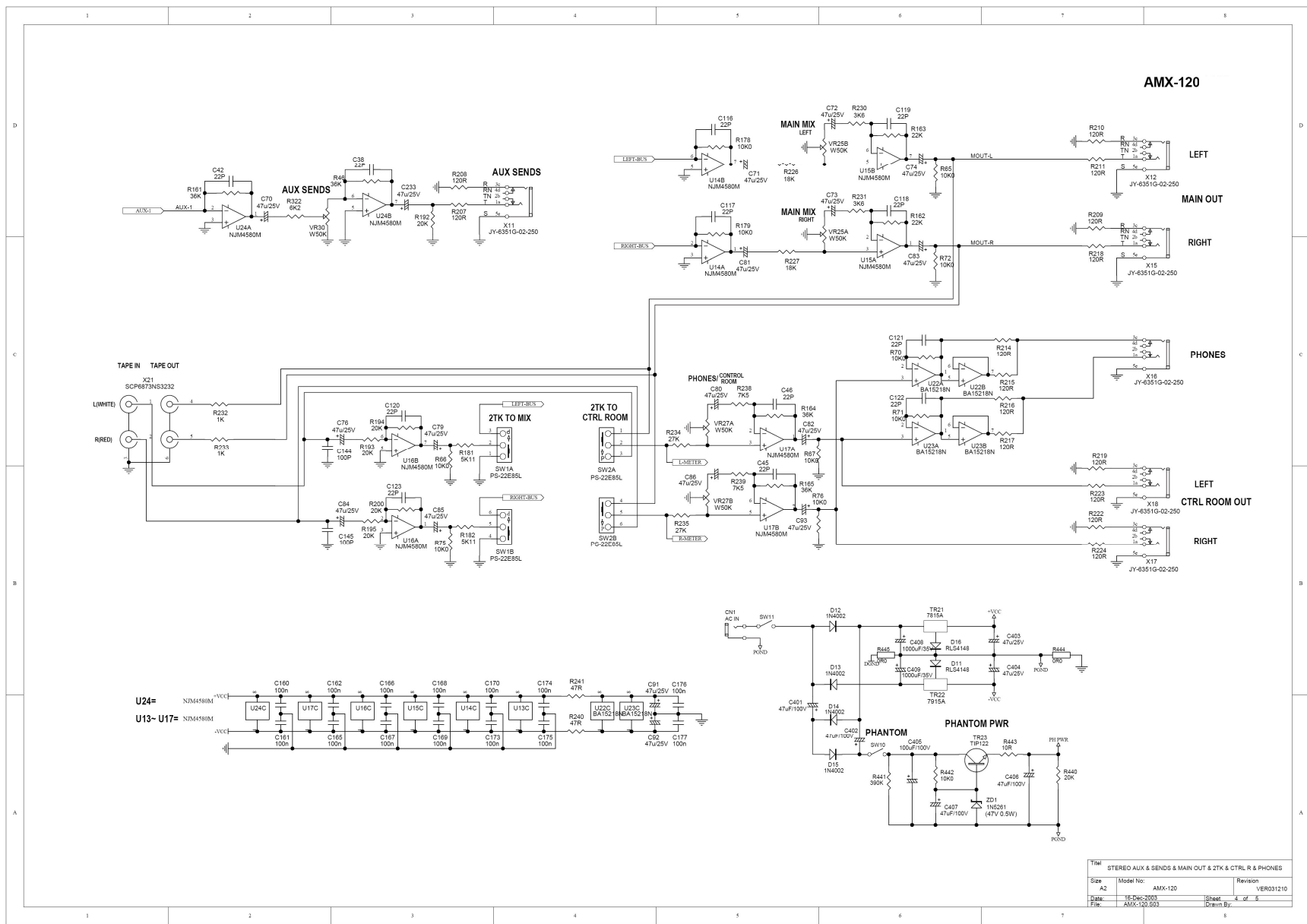
Title			
INPUT STAGE ( CH5-CH8)			
Size	Model No.	AMX-120	Revision
A2			VER031210
Drawn	Date	15-Dec-2001	Sheet 2 of 8
File	AMX-120.S01		Drawn By

# AMX-120



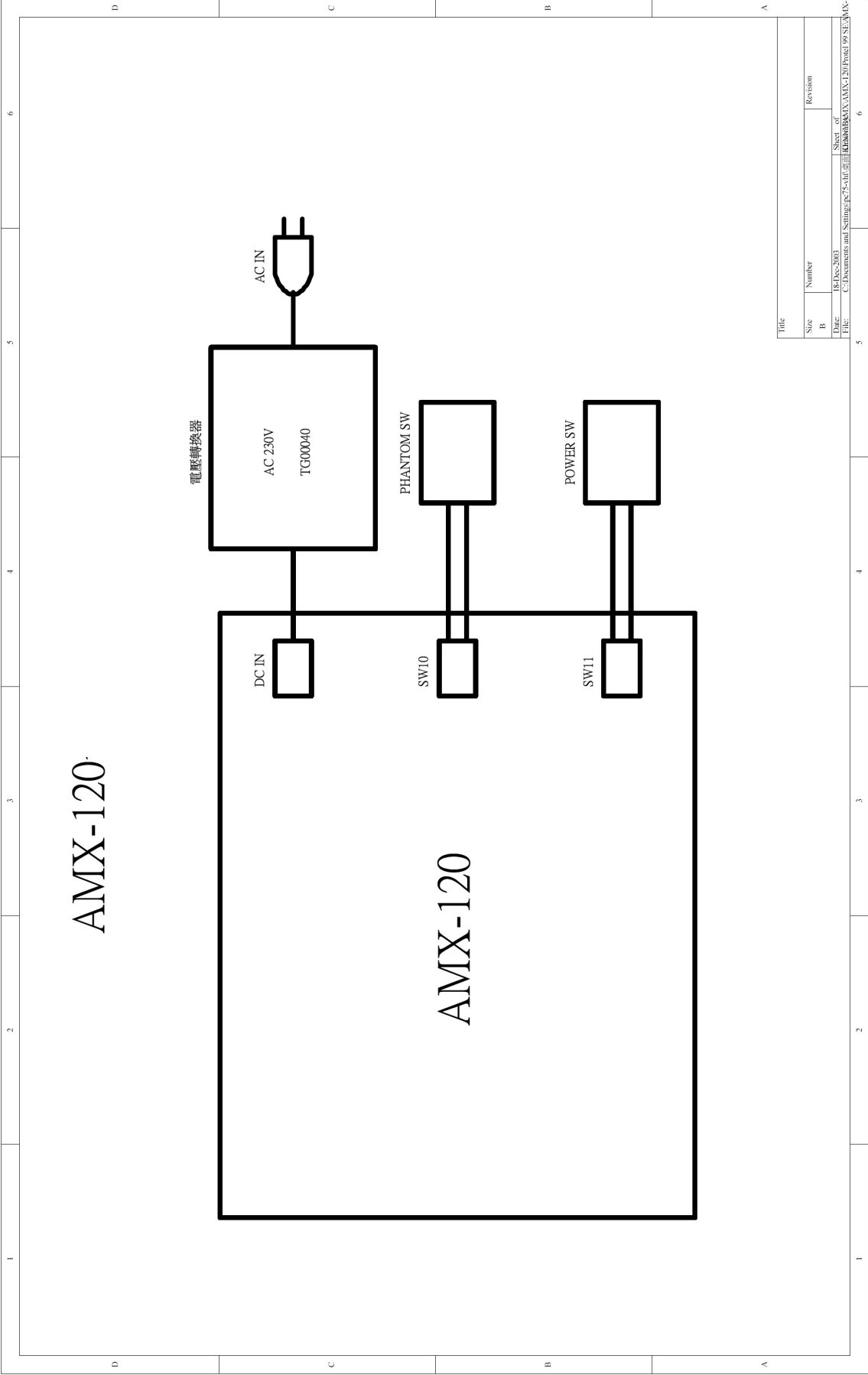
Title			
INPUT STAGE ( CH5-CH8 )			
Size	Model No:	Revision	
A2	AMX-120	VER001210	
Date:	16-Dec-2003	Sheet	3 of 6
File:	AMX-120.002	Drawn By:	





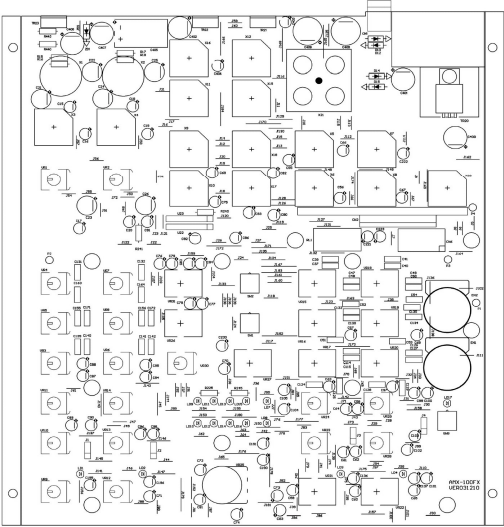
TIME	STEREO AUX & SENDS & MAIN OUT & 2TK & CTRL R & PHONES		
Size	A2	Model No.	AMX-120
Revision	VER031210		
Date	16-DEC-2003	Sheet	4 of 4
File	AMX-120.S03	Drawn By	

# 5. Wiring Diagram

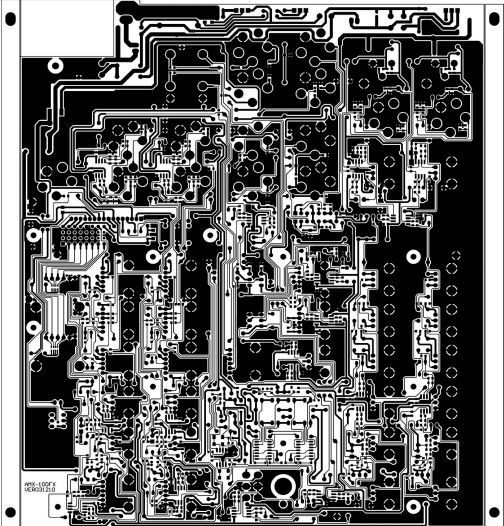


Title		Revision	
Size	Number		
B			
Date: 8/1/2003		Sheet of 6	
File: C:\Documents and Settings\PC5\My Documents\AMX120\Board 09\5\AMX-			

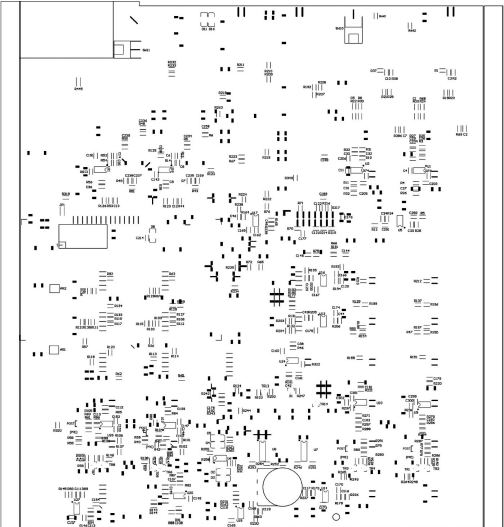
# 6. PCB Layout



PCB : AMX-120FX Top Overlay



PCB : AMX-120FX bottom layer



PCB : AMX-120FX bottom Overlay

## 7. Test Procedure

### 1) Test Equipment:

1. AP ( Audio precision )
2. Dual-track oscilloscope
3. Voltage meter

### 2) Equipment setting

1. AP Output: 0dBu 1KHz sine wave, Load out 40Ω Bal-Float or 600Ω BNC-Unbal
2. AP Input: Load 100KΩ BNC-Unbal or 100KΩ Bal-Float, BW: 22Hz~22KHz, Fltr: A-Weighting (1207)

### 3) Appearance inspection

Check the appearance of unit, the potentiometer knob shall be operated smoothly.

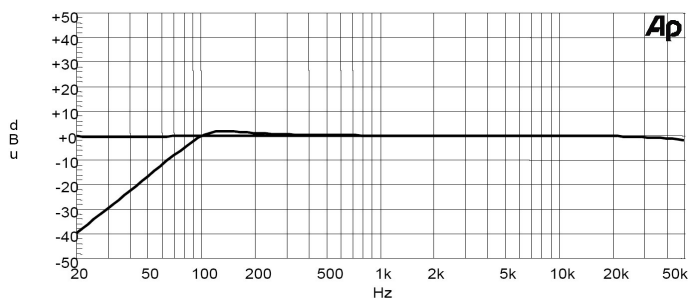
### 4) Function test

1. After visual check, connect the proper AC power supply and turn the main power switch on, the power indicator shall be lit in green. Then turn on the PHANTOM switch and its indicator shall be lit in red. Using voltage meter to measure the voltage between 2 & 3 pins of each MIC (MIC1, MIC2, MIC3 and MIC4 on mono channels) input socket and the phantom voltage shall be 46V(+/-2V). Now turn off the PHANTOM switch. (Note: this switch shall be off during following tests or the unit may be damaged.)
2. Set all TRIM, LEVEL, EQ and AUX knobs in zero position, PAN in left and all buttons off.
3. Connect balanced input to MIC1 and MIC2 independently, connect unbalanced input to LINE IN 3/4 , LINE IN 5/6, LINE 7/8 and LINE 9/10 independently, to measure the balanced output of MAIN MIX OUTPUT and AUX1 while PAN knob set in either left or right, the measurement shall be 0dBu(+/-2dB) THD+N<0.004%.
4. Connect the RCA plug to the left and right inputs of TAPE IN:
  - 4.1 Press the 2TK TO MIX down, measure each output of balanced MAIN MIX OUTPUT (LEFT&RIGHT), of CONTROL ROOM and PHONE (need a stereo plug), all measurements will be 0dBu(+/-2dB)THD+N<0.006%. The output of TAPE OUT shall be 8dBu(+/-1dB) THD+N<0.006%.
  - 4.2 Release the 2TK TO MIX (off), there will be no output on CONTROL ROOM. When press 2TK TO CONTROL ROOM down, the CONTROL ROOM output shall be 0dBu(+/-2dB) THD+N<0.002%.
5. (1) Input a +15dBu 1KHz sine wave from the LINE1(load out 600Ω BNC-Unbal), turn MAIN MIX LEVEL to smallest in counterclockwise, then all LED LEVEL indicators will be off. Then slowly turn MAIN MIX LEVEL in clockwise, the LED LEVEL indicators will be lit in sequence. Now measure the MAIN MIX OUTPUT (LEFT & RIGHT) and it will be same as the LED indicators: i.e. that which indicator is lit and its value will be same as the output. Also, the maximum distortion-free value shall be 20dBu(+/-1dB THD+N<0.1%).  
(2)Turn the TRIM knob of CHANNEL1, the peak LED will be lit in red. It will be same on CHANNEL2~CHANNEL10.

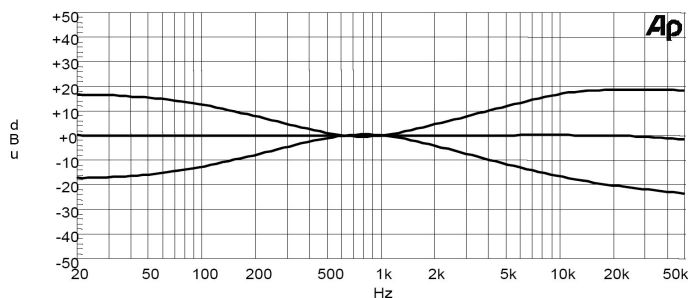
### 5). Frequency response test:

Test the frequency response of MAIN MIX OUTPUT (LEFT & RIGHT) while using input of LINE1 and LINE2 independently according to following procedures. (All controls setting is same as 4.2.)

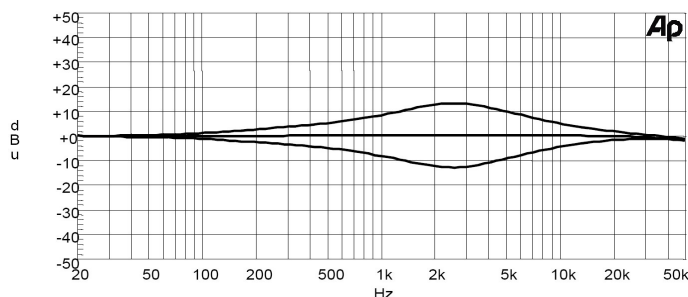
1. Turn on the AMX-120RESP1.at1, the test frequency response will be as following while the LOW CUT switch is depressed or released.



2. Set EQ HI/MID in maximum and minimum independently (EQ MID in center), the frequency response is as following.



3. EQ MID in maximum and minimum independently (EQ HI & LOW in center), the frequency response is as following.



**Note: normal frequency response test:**

1. Input on each of channel, turn EQ LOW on this channel to maximum (+/-15) in clockwise, the output is +/-15dBu(+/-2dB).  
Turn EQ LOW to smallest (-15) counterclockwise, the output is -15dBu (+/-2dB).
2. Change the input frequency to 2.5KHz, turn the EQ MID on respective channel to maximum (+12), the output is +12dBu(+/-2dB), and while the EQ MID in minimum the output will be -12dBu(+/-2dB).
3. Change the input frequency to 12KHz, turn the EQ HIGH to smallest (+15), the output is +15dBu(+/-3dB).
- 6). (1) Input a +15dBu 1KHz sine wave from the LINE1(load out 600Ω BNC-Unbal), turn MAIN MIX LEVEL to smallest in counterclockwise, then all LED LEVEL indicators will be off. Then slowly turn MAIN MIX LEVEL in clockwise, the LED LEVEL indicators will be lit in sequence. Now measure the MAIN MIX OUTPUT (LEFT & RIGHT) and it will be same as the LED indicators: i.e. that which indicator is lit and its value will be same as the output. Also, the maximum distortion-free value shall be 20dBu(+/-1dB THD+N<0.1%).  
(2) Turn the TRIM knob of CHANNEL1, the peak LED will be lit in red. It will be same on CHANNEL2~CHANNEL10.
- 7) **Connect the unit to a high quality amplifier and speaker, there shall be no noise while listening.**
- 8) **Setting before shipment:** all level controls in minimum, others knobs in center, all switch in off.
- 9) **Test finished.**

## 8. BOM

### AMX-120 Parts List

No.	Part No.	Description	Specification	Remark
1	MA04536	panel	AMX-120 ALTO	
2	MA04537	panel	AMX-120	
3	MA04538	panel	AMX-120_V1.8	
4	MJ00061	Zn-plated board	1*2135*1220 20.45kg	
5	ME00113	iron pillar	M3*13.8*0.5PH_V1.1	
6	MB03080	rear board	AMX-120	
7	MB03081	bottom board	AMX-120 1.0t*208*245.5*43	
8	MJ00058	iron board	1*2135*1220 20.45kg	
9	HI00026	power switch	RA12KKATOF 2P	
10	HI00171	power switch	R612KKATOF1	
11	NI02377	knob	$\varphi$ 5.5*7.5mm(内3.3*3.3mm)	
12	NI01863	key	$\varphi$ 5.5*W10*7.5	
13	NI02083	knob	$\varphi$ 10.5*18mm	
14	NI02082	knob	$\varphi$ 10.5*18mm	
15	NI02081	knob	$\varphi$ 10.5*18mm	
16	NI02817	knob	$\varphi$ 10.5*18mm	
17	NI02714	knob	$\varphi$ 10*13.5mm	
18	NI02837	knob	$\varphi$ 35*11mm 534C	
19	MG00041	screw	M3*6	
20	MG00061	screw	M3*10	
21	ME00060	nut	JY-6351G-02-250	
22	MF00061	washer	JY-6351G-02-250	
23	NI00252	sleeve	$\varphi$ 4*20mm	
24	NI00248	sleeve	$\varphi$ 4*1000mm	
25	NI00498	foot cushion	12.7*7*6mm(SF-005)	
26	NA00122	PE bag	0.04t*350*230mm	
27	HJ00006	desiccant	30g	
28	NF00061	assurance card	ALTO	
29	NE05004	label	ALTO	
30	NH00334	cone paper	0.040*1m	
31	HA01388	row-wire connector wiring	2P 100	
32	HA01442	row-wire connector wiring	2P 200	
33	NF01656	instruction	AMX-120 ALTO_V1.1	
34	NH00149	paper	889*640mm	
35	NB02750	color box	AMX-120 ALTO	

## AMX-120 Parts List

No.	Part No.	Description	Specification	Remark
36	NE12191	label	AMX-120	
37	NH00012	bond paper	0.04*1M	
38	NI00014	membrane	0.035*1M	
39	NI03063	handle	AMX-100;100FX;120_V1.0	
40	NI02834	handle	208*33*26mm AMX-120 black	
41	NB02755	barrier	AMX-100;120	
42	NB02754	barrier	AMX-100;120	
43	NB02748	box	AMX-100;100FX;120	
44	TG00038	adaptor	240V/50Hz_AC18V/1000mA_EI-48	
45	HK00813	PC board	P-AMX-120FX-DIP(AMX-120)	
46	CB00003	electrolytic capacitor	0.22uF/50V φ 5*11mm	C198,C199,C200,C201,C202,C207
47	CB00029	electrolytic capacitor	22uF/35V φ 5*11mm	C15,C18
48	CB00042	electrolytic capacitor	47uF/63V 105°C LZ φ 8*11mm	C21,C22,C24,C25
49	CB00052	electrolytic capacitor	100uF/100V φ 13*21mm	C405
50	CB00074	electrolytic capacitor	1000uF/10V φ 8*11mm	C23,C26
51	CB00073	electrolytic capacitor	1000uF/35V φ 13*20mm	C408,C409
52	HC00183	DC power jack	KJ-36-S φ 3.5	CN1
53	SA00052	L.E.D high intensity	3m/m round(green)long foot 26	LD8,LD9,LD10,LD11,LD12
54	SA00053	L.E.D high intensity	3m/m round(red)long foot 26mm	LD1,LD2,LD7,LD15,LD16
55	SA00054	L.E.D high intensity	3m/m round(yellow)long foot 26	LD13,LD14
56	NI01782	LED spacer support	LEDS-11 11mm	
57	HC00065	row-wire header(male)	2P 2.5mm 90°	SW10,SW11
58	HI00236	push-button switch	2-stage 6P PS-9226A(SELF-LOCK)	SW1,SW2,SW3,SW4,SW5,SW6,SW7,SW8
59	SD00077	integrated circuit	L7815CV(TO-220)(ST)	TR21
60	SD00079	integrated circuit	L7915CV(TO-220)(ST)	TR22
61	SB00043	transistor	TIP122(ST)	TR23
62	SD00007	integrated circuit	BA15218N (M5218L substitute)	U22,U23
63	RC00356	potentiometer	Z10KΩ RD09F1130042-10KZ(SAS1);30F	VR1,VR2
64	RC00358	potentiometer	B50KΩ -RD09F113A223-50K2BT(SAS1);30F-C	VR3,VR4,VR5,VR6,VR7,VR8
65	RC00359	potentiometer	W50KΩ RD09F113A224-50K4BT(SAS1);30F-C	VR9,VR10,VR11,VR12,VR13,VR14
66	RC00361	potentiometer	W50KΩ RD12L12CA60B-50K4BT*2(SAS1);30F-C	VR15,VR16,VR17,VR18,VR19,VR20,VR21,VR23,VR27,VR28,VR31
67	RC00369	potentiometer(A10K-41 stage)	W50KΩ RV16A01-30-25F-W50K-3F97	VR25
68	HC00125	MIC jack	JY-6351G-02-250	X3,X4,X5,X6,X7,X8,X9,X10,X11,X15,X16,X17,X18,X19,X20,X12
69	HC00126	XLR MIC jack	JY-5042-030G female plug 180°	X1,X2
70	HC00403	RCA jack	SCP6873NS3232T2 4P	X21

## AMX-120 Parts List

No.	Part No.	Description	Specification	Remark
71	HK00834	PC board	P-AMX-120-AI	
72	HA01920	jumper wire	6mm	J15, J16, J18, J19, J20, J21, J22, J23, J25, J26, J28, J29, J30, J31, J36, J37, J38, J41, J42, J49, J52, J53, J55, J56, J57, J58, J60, J61, J64, J65, J67, J69, J70, J71, J72, J73, J76, J77, J78, J80, J81, J83, J84, J85, J87, J88, J89, J91, J93, J102, J103, J104, J107, J108, J109, J112, J113, J115, J116, J119, J121, J123, J126, J128, J129, J130, J131, J133, J135, J136, J137, J140, J141, J143, J145, J146, J151, J155, J156, J159, J164, J167, J170, J171, J173, J174, J176, J177, J178, J179, J180, J181, J182, J183, J188, J190, J191, J192, J193, J196, J199, J202, J205, J206, J207, J209, J211, J214, J215, J216, J220, J221, J222, J224, J225, J226, J227, J231, J232, J233, J234, J235, J236, J238, J239, J240, J241, J242, J244, J245, J246, J248, J249, J122, J229, J247, J117, J124, J125, J172, J175
73	HA02249	wire	$\phi$ 0.6	
74	HA01925	jumper wire	10mm	J11, J12, J13, J14, J17, J24, J27, J32, J35, J39, J40, J44, J45, J46, J47, J48, J50, J51, J54, J59, J62, J66, J68, J75, J79, J86, J92, J94, J100, J101, J115, J116, J117, J139, J142, J147, J152, J153, J154, J157, J158, J161, J163, J165, J168, J169, J184, J185, J187, J189, J194, J195, J196, J197, J200, J204, J208, J210, J217, J218, J219, J223, J228, J132, J237, J111, J138, J74, J230
75	HA02249	wire	$\phi$ 0.6	
76	HA01931	jumper wire	16mm	J7, J8, J10, J33, J43, J63, J90, J95, J96, J97, J98, J99, J114, J144, J148, J149, J150, J160, J162, J186, J201, J203, J212, J213, J243, J250, J251, J9
77	HA02249	wire	$\phi$ 0.6	
78	HK00817	PC board	P-AMX-120FX-SMD(AMX-120)	
79	HB01111	PCB	AMX-120FX_VER040711	
80	CI00051	SMD ceramic capacitor 0603	22PF/50V NPO $\pm$ 5%	C6, C8, C9, C12, C13, C14, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C110, C111, C112, C113, C114, C115, C116, C117, C118, C119, C120, C121, C122, C123, C124, C125, C179, C180, C181, C183, C106, C108, C109, C192
81	CI00055	SMD ceramic capacitor 0603	47PF/50V NPO $\pm$ 5%	C4, C11
82	CI00059	SMD ceramic capacitor 0603	100PF/50V NPO $\pm$ 5%	C126, C127, C128, C129, C130, C133, C134, C135, C136, C137, C138, C143, C144, C145, C146, C147, C148, C149, C188, C189
83	CI00063	SMD ceramic capacitor 0603	470PF/50V NPO $\pm$ 5%	C1, C2, C3, C5, C7, C10
84	CI00075	SMD ceramic capacitor 0603	0.1uF/50V Y5V +80, -20%	C150, C151, C152, C153, C154, C157, C158, C159, C160, C161, C162, C165, C166, C167, C168, C169, C170, C173, C174, C175, C176, C177, C178, C182, C184, C185, C186, C187, C203, C204, C205, C206, C210, C211, C287, C288, C289, C290, C291, C292, C299, C300, C301, C302, C58, C59, C65, C66
85	SE00008	SMD rectifier diode	DA204K/T-146	D1
86	SE00011	SMD rectifier diode	RLS4148 0.5A (LL-34)	D2, D3, D4, D5, D11, D16
87	RD00059	SMD fixed resistor 1/10W	0.0 $\Omega$ $\pm$ 5% 0603	R445
88	RD00355	SMD fixed resistor 1/10W	4.7 $\Omega$ $\pm$ 5% 0603	R1, R2, R37, R38
89	RD00061	SMD fixed resistor 1/10W	10 $\Omega$ $\pm$ 5% 0603	R251
90	RD00265	SMD fixed resistor 1/10W	27 $\Omega$ $\pm$ 5% 0603	R73, R74
91	RD00065	SMD fixed resistor 1/10W	47 $\Omega$ $\pm$ 5% 0603	R242, R243
92	RD00305	SMD fixed resistor 1/10W	110 $\Omega$ $\pm$ 5% 0603	R246
93	RD00069	SMD fixed resistor 1/10W	120 $\Omega$ $\pm$ 5% 0603	R207, R208, R209, R210, R211, R214, R215, R216, R217, R218, R219, R222, R223, R224
94	RD00070	SMD fixed resistor 1/10W	150 $\Omega$ $\pm$ 5% 0603	R252
95	RD00078	SMD fixed resistor 1/10W	470 $\Omega$ $\pm$ 5% 0603	R247, R250
96	RD00082	SMD fixed resistor 1/10W	820 $\Omega$ $\pm$ 5% 0603	R253
97	RD00349	SMD fixed resistor 1/10W	910 $\Omega$ $\pm$ 5% 0603	R196, R197, R198, R199
98	RD00083	SMD fixed resistor 1/10W	1.0K $\Omega$ $\pm$ 5% 0603	R232, R233, R254, R124
99	RD00350	SMD fixed resistor 1/10W	1.1K $\Omega$ $\pm$ 5% 0603	R212, R213
100	RD00084	SMD fixed resistor 1/10W	1.2K $\Omega$ $\pm$ 5% 0603	R302, R303, R304, R305, R306, R307, R308, R309
101	RD00351	SMD fixed resistor 1/10W	1.3K $\Omega$ $\pm$ 5% 0603	R137, R139, R267, R268
102	RD00085	SMD fixed resistor 1/10W	1.5K $\Omega$ $\pm$ 5% 0603	R264, R265
103	RD00087	SMD fixed resistor 1/10W	2.0K $\Omega$ $\pm$ 5% 0603	R244
104	RD00352	SMD fixed resistor 1/10W	3.6K $\Omega$ $\pm$ 5% 0603	R23, R24, R29, R30, R230, R231
105	RD00092	SMD fixed resistor 1/10W	3.9K $\Omega$ $\pm$ 5% 0603	R148, R256, R257



## AMX-120 Parts List

No.	Part No.	Description	Specification	Remark
106	RD00093	SMD fixed resistor 1/10W	4.7K $\Omega$ $\pm$ 5% 0603	R77,R78,R79,R80,R112,R113,R115,R116, R119,R121,R122,R248,R249,R118
107	RD00096	SMD fixed resistor 1/10W	6.2K $\Omega$ $\pm$ 5% 0603	R125,R126,R127,R128,R129,R130,R133,R134
108	RD00097	SMD fixed resistor 1/10W	6.8K $\Omega$ $\pm$ 5% 0603	R150,R151,R152,R154,R155,R156,R269,R272
109	RD00098	SMD fixed resistor 1/10W	7.5K $\Omega$ $\pm$ 5% 0603	R238,R239
110	RD00099	SMD fixed resistor 1/10W	8.2K $\Omega$ $\pm$ 5% 0603	R168,R172,R176,R184
111	RD00102	SMD fixed resistor 1/10W	12K $\Omega$ $\pm$ 5% 0603	R169,R170,R171,R173,R174,R175,R183,R185
112	RD00103	SMD fixed resistor 1/10W	15K $\Omega$ $\pm$ 5% 0603	R203,R204
113	RD00104	SMD fixed resistor 1/10W	18K $\Omega$ $\pm$ 5% 0603	R226,R227
114	RD00306	SMD fixed resistor 1/10W	20K $\Omega$ $\pm$ 5% 0603	R186,R187,R188,R189,R190,R191,R192,R193, R194,R195,R200,R201,R202,R273,R274
115	RD00105	SMD fixed resistor 1/10W	22K $\Omega$ $\pm$ 5% 0603	R131,R132,R236,R237,R275,R322,R162,R163
116	RD00106	SMD fixed resistor 1/10W	27K $\Omega$ $\pm$ 5% 0603	R234,R235
117	RD00107	SMD fixed resistor 1/10W	30K $\Omega$ $\pm$ 5% 0603	R205,R206
118	RD00353	SMD fixed resistor 1/10W	36K $\Omega$ $\pm$ 5% 0603	R46,R149,R153,R157,R158,R159,R160,R161, R164,R165,R166,R167,R270,R271
119	RD00111	SMD fixed resistor 1/10W	47K $\Omega$ $\pm$ 5% 0603	R228,R229
120	RD00113	SMD fixed resistor 1/10W	62K $\Omega$ $\pm$ 5% 0603	R263,R266
121	RD00116	SMD fixed resistor 1/10W	100K $\Omega$ $\pm$ 5% 0603	R255,R258,R259,R260
122	RD00345	SMD fixed resistor 1/10W	390K $\Omega$ $\pm$ 5% 0603	R441
123	RD00125	SMD fixed resistor 1/10W	1.0M $\Omega$ $\pm$ 5% 0603	R220,R221
124	RD00210	SMD precise resistor 1/10W	5.11K $\Omega$ $\pm$ 1% 0603	R3,R4,R10,R11,R27,R28,R33,R34,R177,R180, R181,R182,R284,R286,R287,R288,R290,R291 R6,R7,R9,R13,R14,R25,R26,R31,R32,R35,R36,R39,R40,R41,R42,R43 R44,R45,R47,R48,R49,R50,R51,R52,R53,R54,R55,R56,R57,R58,R59, R60,R61,R62,R63,R64,R65,R66,R67,R70,R71,R72,R75,R76,R81,R82, R83,R84,R85,R86,R87,R88,R89,R90,R95,R96,R97,R98,R99,R100, R101,R102,R103,R261,R262,R442,R107,R108,R109,R117,R178,R179
125	RD00214	SMD precise resistor 1/10W	10.0K $\Omega$ $\pm$ 1% 0603	R19,R20,R21,R22
126	RD00334	SMD precise resistor 1/10W	11.0K $\Omega$ $\pm$ 1% 0603	R19,R20,R21,R22
127	RD00371	SMD precise resistor 1/10W	51.1K $\Omega$ $\pm$ 1% 0603	R8,R68,R69,R386
128	SF00010	SMD transistor	2SC2412K(SOT-23)/(R)	TR1,TR2,TR3,TR4,TR15
129	SF00004	SMD transistor	2SA1036K(SOT-23)/(R)	TR13,TR14
130	SG00032	SMD integrated circuit	LM339DR(TI)	U7,U8
131	SG00122	SMD integrated circuit	NJM4580M-TE3	U1,U2,U3,U4,U5,U6,U9,U10,U11,U12,U13,U14,U1 5,U16,U17,U18,U19,U20,U21,U24,U25,U26,U27
132	RD00365	SMD precise resistor 1/10W	5.62K $\Omega$ $\pm$ 1% 0603	R104,R105,R106,R114
133	CB00238	electrolytic capacitor	0.22uF/50V $\phi$ 5*11mm	C198,C199,C200,C201,C202,C207
134	CB00239	electrolytic capacitor	2.2uF/50V $\phi$ 5*11mm	C195,C196
135	CB00242	electrolytic capacitor	22uF/35V $\phi$ 5*11mm	C16,C19
136	CB00194	electrolytic capacitor	47uF/25V $\phi$ 5*11mm	C17,C20,C51,C52,C53,C54,C55,C56,C57,C60,C61,C62,C63,C64,C67, C68,C69,C70,C71,C72,C73,C74,C75,C76,C77,C78,C79,C80,C81,C82, C83,C84,C85,C86,C87,C88,C89,C90,C91,C92,C93,C94,C95,C96,C97, C98,C99,C100,C101,C102,C103,C104,C105,C190,C191,C208,C209, C233,C403,C404,C107
137	CB00254	electrolytic capacitor	47uF/100V $\phi$ 10*12mm 5mm	C401,C402,C406,C407
138	CF00138	metal-film capacitor MSC	0.012uF/63V $\pm$ 5% CASE01	C155,C156,C171,C172
139	CF00136	metal-film capacitor MSC	0.018uF/63V 5% CASE01	C131,C132,C163,C164
140	CF00137	metal-film capacitor MSC	0.033uF/63V 5% CASE01	C139,C140,C141,C142

## AMX-120 Parts List

No.	Part No.	Description	Specification	Remark
141	SA00094	rectifier diode	1N4002/100V	D12,D13,D14,D15
142	RA01258	fixed resistor 1/4W	10 $\Omega$	R443
143	RA01260	fixed resistor 1/4W	120 $\Omega$	R225,R245
144	RA01115	fixed resistor 1/4W	20K $\Omega$	R440
145	RA01259	fixed resistor 1/4W	47 $\Omega$	R240,R241
146	RA01262	precise resistor 1/4W	6.81K $\Omega$	R15,R16,R17,R18
147	SA00127	zener diode	1/2W 47V 1N5261	ZD1
148	MI01906	heat sink	AMX-120_V1.2	
149	MJ00055	AL board	2*2000*1000 10.88kg	
150	NI02249	insulate bean	TW-1(TO-220)	
151	NC00005	silicone insulator	TO-220 square type	
152	MG00166	screw	M3*10	
153	ME00015	nut	3m/m	
154	MF00037	washer	$\phi$ 3* $\phi$ 5*1t	
155	ME00052	nut	$\phi$ 7	
156	MF00060	washer	$\phi$ 7* $\phi$ 12*0.5t	
157	HA00373	wire	90mm black L5R5	
158	NI00252	sleeve	$\phi$ 4*20mm	
159	NI00248	sleeve	$\phi$ 4*1000mm	
160	HA02382	wire	55mm	P7-P8
161	HA00053	wire	80mm black L3R3	P1-P3
162	HA02201	wire	35mm black L5R12	P3-P4
163	NE02717	label	MADE IN CHINA	
164	NH00038	paper	0.115*1M	
165	NI00028	membrane	0.110*1M	
166	NI02911	handle	ALTO 072C	
167	MG00050	screw	M3*8	
168	AF00050	list	ALTO JANSEN	
169	AD00012	twin adhesive	90*120mm_V1.0	
170	NA00279	clip-chain bag	0.04t*100*150mm_V1.0	
171	MI02085	fixed bracket	AMX-120 left_V1.0	
172	MI02084	fixed bracket	AMX-120 left_V1.0	
173	MJ00058	iron board	1*2135*1220 20.45kg	
174	MI02087	fixed bracket	AMX-120 right_V1.0	
175	MI02086	fixed bracket	AMX-120 right_V1.0	
176	MJ00058	iron board	1*2135*1220 20.45kg	