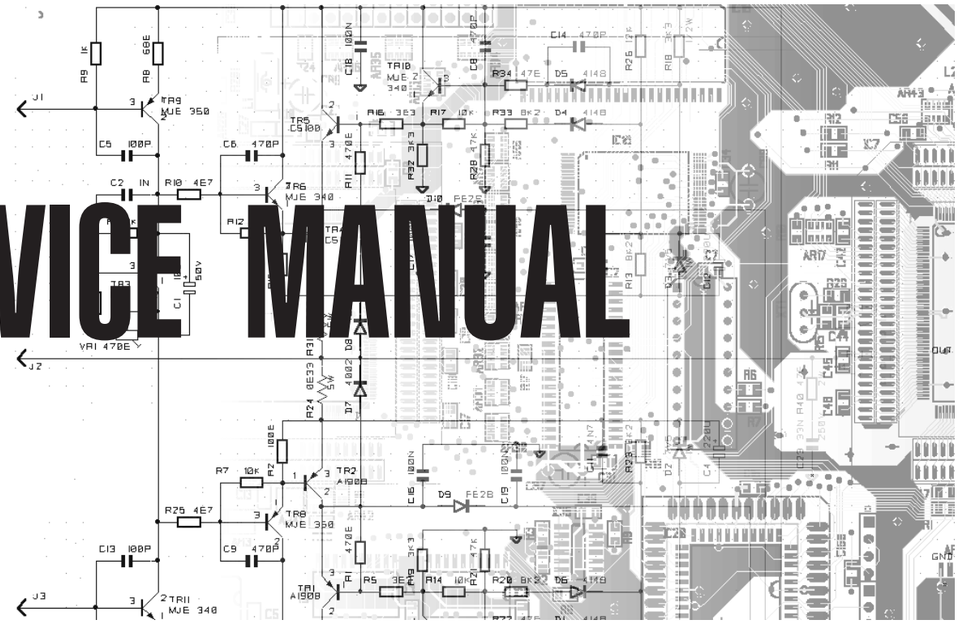
FX 24

40-bit DUAL STEREO DIGITAL EFFECT PROCESSOR

SERVICE MANUAL



GENERALMUSIC®

CODE: 270251

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Warnings

Notice

Service must be carried out by qualified personnel only. Any tampering carried out by unqualified personnel during the guarantee period will forfeit the right to guarantee.

For a correct operation of the instrument, after having switched off, be careful to wait at least 3 seconds before switching on again.

To improve the device's specifications, the schematic diagrams may be subject to change without prior notice.

All components marked by this symbol have special safety characteristics, when replacing any of these components use only manufacturer's specified parts.

The (μ) micro symbol of capacitance value is substituted by U.

The (Ω) omega symbol of resistance value is substituted by E.

The electrolytic capacitors are 25Vdc rated voltage unless otherwise specified.

All resistors are 1/8W unless otherwise specified.

All switches shown in the "OFF" position. All DC voltages measured to ground with a voltmeter 20KOhm/V.

- Soldering point.
- Male connector.
- Female connector.
- M/F faston connector.
- Supply voltage.
- Test point.
- Flag joined with one or more flags with the same signal name inscribed.
- Logic supply ground.
- Analog supply ground.
- Chassis ground.
- Earth ground.

ATTENTION Observe precautions when handling electrostatic sensitive devices.

Address

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FX 24 • TECHNICAL SPECIFICATIONS

INPUT section	
Connectors	2 x JACK 1/4" unbalanced
Input sensitivity	0 dB / 0.775 V
Max. input level	+12 dB
Impedance	47 kOhms
OUTPUT section	
Connectors	4 x JACK 1/4" unbalanced
Nominal output level	0 dB
Max. output level	+12 dB
Impedance	1 kOhms
DSP section	
A/D converters	20 bit
D/A converters	24 bit
Internal dynamics	40 bit
Sampling frequency	48 kHz
Features	
Configuration	FULL DUAL STEREO (2 IN / 4 OUT): 2 stereo effects completely independents
Features	Up to 3 effect ALGORITHMS for each PRESET 3 EDITABLE PARAMETERS for each effect ALGORITHMS 128 FACTORY PRESETS + 128 USER PRESETS for each A & B section 64 + 64 GLOBAL MIDI implementation
Type of effects	Hall, Room, Vocal, Plate & Gate Reverbs - Delay - Chorus - Flanger - Phaser - Rotary - Pitch Shift
Controls	3-DIGIT LCD with rotary DIAL MACHINE A & B selector EDIT buttons REVERB, DEALY & MODULATION + PARAMETER selector MIX selector for IN/OUT LEVEL and BALANCE GLOBAL and MIDI selectors RECALL and STORE buttons for PRESETS and GLOBALS SIGNAL/PEAK LEDs BYPASS switch and MUTE FOOTSWITCH connector (rear panel)
General Specifications	
Frequency response	20 Hz - 20 kHz
Dynamic range	102 dB
Distortion (THD)	0.06% @ 1 kHz (dry)
Power supply	see label on the unit rear panel
Dimensions	483 x 44 x 300 mm (W x H x D)
Weight	4.0 kg

FX 24 - PRESET TABLE

No.	REVERBS	REV	RT	ROOM	PD	HF
1	***Large Bright Hall***	*Hall*	**2.4**	**54**	**22**	6.94
2	***Small Bright Hall***	*Hall*	**1.5**	**38**	**14**	6.94
3	***Brass Hall***	*Hall*	**1.7**	**50**	**40**	8.98
4	***Crystal Hall***	*Hall*	**1.7**	**35**	**22**	thru
5	***Choir Hall***	*Hall*	**1.7**	**38**	**16**	11.6
6	***Percussion Hall***	*Hall*	**1.7**	**35**	**16**	8.98
7	***Large Warm Hall***	*Hall*	**2.9**	**55**	**23**	1.49
8	***Small Warm Hall***	*Hall*	**1.7**	**38**	**14**	1.92
9	***Acoustic Hall***	*Hall*	**1.7**	**45**	**20**	1.92
10	***Concert Hall***	*Hall*	**0.9**	**45**	**35**	1.15
11	***Horn Hall***	*Hall*	**2.1**	**40**	**50**	5.37
12	***Cathedral***	*Hall*	**6.1**	**55**	**50**	1.49
13	***Stadium***	*Hall*	**2.4**	**55**	**50**	0.53
14	***Large Room***	*Room*	**1.7**	**45**	**15**	5.37
15	***Small Room***	*Room*	**0.8**	**25**	**7**	2.49
16	***Tom Room***	*Room*	**1.3**	**35**	**8**	8.98
17	***BD Room***	*Room*	**0.8**	**25**	**7**	5.37
18	***SD Room***	*Room*	**0.9**	**35**	**6**	1.15
19	***Dark Room***	*Room*	**1.0**	**30**	**9**	3.21
20	***Female Long***	*Vocal*	**2.9**	**70**	**70**	3.21
21	***Female Short***	*Vocal*	**0.9**	**15**	**30**	3.21
22	***Male Long***	*Vocal*	**2.9**	**70**	**70**	4.16
23	***Male Short***	*Vocal*	**0.9**	**15**	**30**	4.16
24	***Backing Vox***	*Vocal*	**0.7**	**50**	**70**	6.94
25	***Drums Small***	*Plate*	**1.2**	**22**	**8**	5.37
26	***Drums Large***	*Plate*	**3.6**	**22**	**40**	8.98
27	***Piano Small***	*Plate*	**0.6**	**5**	**15**	11.6
28	***Piano Large***	*Plate*	**1.3**	**42**	**20**	5.37
29	***Vocal Small***	*Plate*	**1.0**	**15**	**15**	1.15
30	***Vocal Large***	*Plate*	**2.1**	**45**	**33**	6.94
31	***SD Gate***	*Gate*	**0.9**	**35**	**6**	1.15
32	***BD Gate***	*Gate*	**0.8**	**25**	**7**	5.37
33	***Percussion Gate***	*Gate*	**1.2**	**23**	**7**	6.94
34	***Vocal Gate***	*Gate*	**0.6**	**50**	**40**	8.98
35	***Brass Gate***	*Gate*	**1.7**	**50**	**40**	8.98
36	***Rhythm Gate***	*Gate*	**1.5**	**30**	**20**	8.98
37	***Strong Cut***	*Gate*	**2.1**	**20**	**10**	3.21

No.	DELAYS	DEL	LD	RD	L FB	R FB	HF
38	***Mono Delay***	*Mono*	**200**	200	**50%**	50%	**0**
39	***Stereo Delay***	*Stereo*	**250**	500	**56%**	23%	**0**
40	***Tube***	*Stereo*	**35**	35	**59.5%**	52	**0**
41	***Bounce***	*Stereo*	**500**	250	**0%**	0%	**-3**
42	***Tape Back***	*Stereo*	**35**	75	**11%**	11%	**-1**
43	***R&R***	*Stereo*	**69**	80	**21%**	21%	**0**

No.	MODULATIONS	MOD	Mod. freq.	Mod. Depth	Pan Depth	R FB	L FB	LPF	Pan freq.	Slow/Fast	Attack	Xover
44	***Vocal Chorus***	*Chorus*	**0.8**	**80.0**	**0**							
45	***Guitar Chorus***	*Chorus*	**0.7**	**61.5**	**29.0**							
46	***Rich Chorus***	*Chorus*	**1.1**	**87.0**	**29.0**							
47	***Vibra Chorus***	*Chorus*	**5.3**	**16.5**	**0**							
48	***Moving Flanger***	*Flanger*	**1.6**	**25.5**	47.5	**67.5%**	67.5%					
49	***Guitar Flanger***	*Flanger*	**1.6**	**43.0**	0	**65%**	65%					
50	***Rich Flanger***	*Flanger*	**1.6**	**66.5**	43.0	**75.5%**	64%					
51	***Large Flanger***	*Flanger*	**0.2**	**89.5**	16.5	**75.5%**	80%					
52	***Fast Phaser***	*Phaser*	**6.2**	**67.5**	58.0	**65%**	65%	-19				
53	***Slow Phaser***	*Phaser*	**0.6**	**67.5**	96.0	**65%**	65%	-19				
54	***Funky Phaser***	*Phaser*	**1.1**	**58.0**	0	**31.5%**	31%	-6				
55	***Large Phaser***	*Phaser*	**0.6**	**100.0**	58.0	**79%**	78%	-6				
56	***Sweet Rotation***	*Phaser*	**3.9**	**43.0**	76.0	**31.5%**	33%	0				
57	***Hard Rotation***	*Phaser*	**16.4**	**43.0**	78.0	**54.5%**	53%	0				
58	***Slow Rotary***	*Rotary*								**SLOW**	**6.5**	**0.35**
59	***Fast Rotary***	*Rotary*								**FAST**	**6.5**	**0.35**
60	***Slow Tremolo***	*Phaser*							**2.1**			
61	***Fast Tremolo***	*Phaser*							**5.3**			

No.	PITCH	PITCH	Glob. Pitch	Fine Pitch
62	***Fine pitch +***	*Pitch*	***0***	**5**
63	***Fine pitch -***	*Pitch*	***0***	**-6**
64	***Pitch 4***	*Pitch*	***5***	**-2**

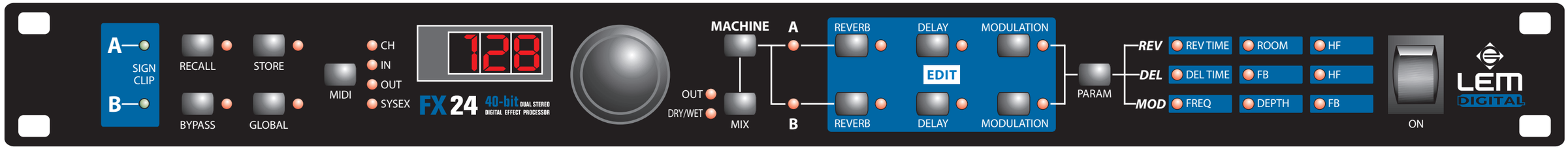
No.	REV+DEL	REV	RT	ROOM	PD	HF	DEL	LD	RD	L FB	R FB	HF
65	***Heavy D&R Vocals***	*Vocal*	**4.5**	**30**	**5**	3.21	*Stereo*	**300**	150	**24%**	60%	**-5**
66	***Soft D&R Vocals***	*Vocal*	**1.0**	**15**	**20**	6.94	*Stereo*	**111**	150	**0%**	0%	**-5**
67	***Drum Hall***	*Hall*	**1.7**	**35**	**16**	8.98	*Stereo*	**200**	100	**50%**	50%	**-20**
68	***Small Reflections***	*Hall*	**1.0**	**15**	**16**	8.98	*Stereo*	**100**	90	**5%**	5%	**-12**
69	***Plate Delay***	*Room*	**1.7**	**20**	**18**	8.98	*Stereo*	**300**	150	**42%**	61%	**-10**
70	***Gymnasium***	*Hall*	**1.5**	**20**	**225**	6.94	*Stereo*	**200**	209	**43%**	43%	**-11**
71	***Smooth Church***	*Hall*	**2.1**	**38**	**20**	3.21	*Stereo*	**150**	250	**60.5%**	33%	**-11**
72	***Background***	*Plate*	**1.7**	**30**	**20**	6.94	*Stereo*	**111**	150	**0%**	0%	**-5**
73	***Back Gate***	*Plate*	**0.6**	**10**	**5**	6.94	*Stereo*	**200**	300	**0%**	0%	**0**

No.	REV+MOD	REV	RT	ROOM	PD	HF	MOD	Mod. freq.	Mod. Depth	Pan Depth	R FB	L FB	LPF	Pan freq.	Slow/Fast	Attack	Xover
74	***C&R Vocals***	*Plate*	**2.1**	**20**	**125**	8.98	*Chorus*	**2.5**	**63.0**	**0**							
75	***Guitar Combo***	*Plate*	**1.2**	**30**	**8**	8.98	*Chorus*	**1.1**	**83.5**	**39.5**							
76	***Electric Hall***	*Plate*	**1.7**	**30**	**15**	5.37	*Chorus*	**7.2**	**47.5**	**75.5**							
77	***Soft Chords***	*Plate*	**1.3**	**15**	**10**	11.6	*Chorus*	**1.1**	**10.0**	**47.5**							
78	***Ambience***	*Hall*	**2.1**	**20**	**50**	8.98	*Chorus*	**2.5**	**63.0**	**0**							
79	***Reflections***	*Hall*	**1.2**	**10**	**125**	8.98	*Chorus*	**0.7**	**83.5**	**47.5**							
80	***Flanged Piano***	*Plate*	**0.6**	**5**	**15**	11.6	*Flanger*	**0.2**	**89.5**	16.0	**68%**	75%	-0.08				
81	***Flanged Vocal***	*Plate*	**1.0**	**15**	**15**	1.15	*Flanger*	**1.6**	**25.5**	47.0	**60%**	60%	-0.35				
82	***Rich Room***	*Room*	**1.7**	**45**	**15**	5.37	*Flanger*	**1.6**	**25.5**	53.0	**60%**	68%	-0.08				
83	***Vibra Hall***	*Hall*	**2.4**	**54**	**22**	6.94	*Flanger*	**6.7**	**6.0**	28.0	**60%**	60%	-0.1				
84	***Phased Piano***	*Plate*	**1.3**	**42**	**20**	5.37	*Phaser*	**0.9**	**67.5**	58.0	**65%**	65%	-19				
85	***Funky Hall***	*Hall*	**0.7**	**20**	**12**	8.98	*Phaser*	**1.1**	**58.0**	0	**31.5%**	31.5%	-6				
86	***Tremolo Hall***	*Hall*	**1.7**	**38**	**14**	1.92	*Phaser*							**2**			
87	***Rotary Room***	*Room*	**0.8**	**15**	**8**	1.49	*Rotary*								**SLOW**	**6.5**	**0.35**
88	***Rotary Jazz***	*Room*	**0.6**	**22**	**12**	1.92	*Rotary*								**FAST**	**6.5**	**0.35**

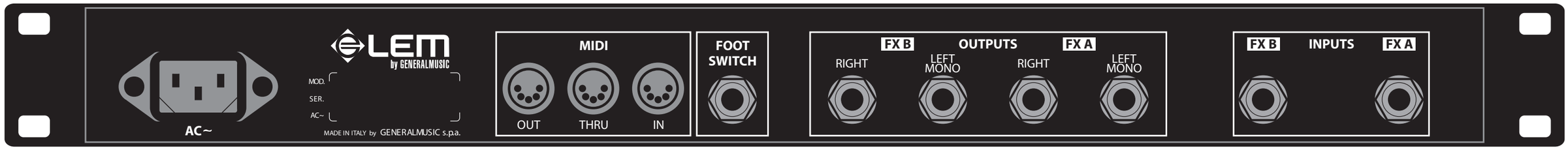
FX 24 - PRESET TABLE

No.	REV+DEL+MOD	REV	RT	ROOM	PD	HF	DEL	LD	RD	L FB	R FB	HF	MOD	Mod. freq.	Mod. Depth	Pan Depth	R FB	L FB	LPF	Pan freq.	Slow/Fast	Attack	Xover
89	***Stereo Guitar***	*Hall*	**1.0**	**27**	**22**	thru	*Stereo*	**100**	50	**0**	0	**-13**	*Chorus*	**1.1**	**61.5**	**9.5**							
90	***Solo Guitar***	*Hall*	**1.7**	**20**	**22**	thru	*Stereo*	**150**	100	**0**	0	**-13**	*Chorus*	**2.1**	**68.5**	**44.0**							
91	***Deep Impact***	*Plate*	**1.0**	**30**	**225**	thru	*Stereo*	**30**	50	**0**	0	**-13**	*Flanger*	**3.8**	**0**	64.0	**85%**	85%	0				
92	***Cavern***	*Plate*	**3.6**	**30**	**70**	thru	*Stereo*	**100**	150	**0**	0	**-13**	*Flanger*	**3.9**	**0**	64.0	**85%**	85%	0				
93	***Ice Pizzicato***	*Room*	**6.1**	**30**	**50**	thru	*Stereo*	**100**	110	**61.5%**	55%	**0**	*Flanger*	**2.1**	**51.5**	60.0	**100%**	100%	0				
94	***Split Signals***	*Room*	**0.6**	**30**	**50**	thru	*Stereo*	**10**	300	**61.5%**	61.5%	**0**	*Flanger*	**38.7**	**0.5**	0	**100%**	100%	-10				
95	***Inside A Dream***	*Room*	**6.1**	**30**	**50**	13	*Stereo*	**300**	0	**66.5%**	0	**0**	*Flanger*	**38.7**	**0.5**	0	**100%**	100%	-10				
96	***Foundry Room***	*Room*	**1.5**	**8**	**0**	thru	*Stereo*	**1**	1	**50%**	25%	**0**	*Phaser*	**0.6**	**95.5**		**73.5%**	75%	-7.9				
97	***Foundry Cut***	*Room*	**1.2**	**10**	**0**	thru	*Stereo*	**1**	1	**50%**	25%	**0**	*Phaser*	**0.6**	**95.5**		**73.5%**	75%	-7.9				
98	***Snake Guitar***	*Hall*	**6.1**	**20**	**225**	thru	*Stereo*	**100**	200	**80%**	60%	**0**	*Phaser*	**2.1**	**100**		**80%**	92%	0				
99	***Spatial Groove***	*Plate*	**2.9**	**15**	**40**	thru	*Stereo*	**337**	325	**37%**	20%	**-13**	*Phaser*	**5.3**	**13.0**		**73.5%**	68%	0				
100	***Glass Cavern***	*Room*	**4.5**	**40**	**125**	thru	*Stereo*	**10**	30	**37%**	20%	**-13**	*Phaser*	**0.2**	**83.5**		**82.5%**	82.5%	0				
101	***Silica Hall***	*Hall*	**2.1**	**25**	**70**	thru	*Stereo*	**10**	30	**37%**	20%	**-13**	*Phaser*	**0.2**	**83.5**		**82.5%**	82.5%	0				
102	***Brake Loop***	*Plate*	**2.1**	**25**	**70**	thru	*Stereo*	**100**	50	**37%**	20%	**-13**	*Phaser*	**0.2**	**83.5**		**82.5%**	82.5%	0				
103	***Separated Floor***	*Plate*	**0.9**	**25**	**70**	32	*Stereo*	**100**	50	**37%**	20%	**-13**	*Phaser*	**0.2**	**83.5**		**82.5%**	82.5%	0				
104	***Pulsar***	*Hall*	**4.5**	**5**	**225**	1.92	*Stereo*	**186**	174	**36%**	30%	**-13**	*Phaser*	**0.2**	**51.0**		**46.5%**	82%	0				
105	***Electric Chain***	*Hall*	**4.5**	**5**	**225**	1.92	*Stereo*	**186**	174	**36%**	30%	**-13**	*Phaser*	**0.2**	**26.0**		**13%**	82%	0				
106	***Chewingum***	*Hall*	**4.5**	**30**	**50**	thru	*Stereo*	**186**	174	**36%**	30%	**-13**	*Phaser*	**0.2**	**26.0**		**13%**	82%	0				
107	***Brake Rubber***	*Hall*	**4.5**	**30**	**50**	thru	*Stereo*	**186**	174	**0**	0	**-13**	*Phaser*	**0.2**	**26.0**		**13%**	82%	0				
108	***Slow Room***	*Room*	**1.3**	**8**	**0**	3.21	*Stereo*	**20**	10	**0**	0	**-10**	*Rotary*								**SLOW**	**6.5**	**0.35**
109	***Fast Room***	*Room*	**1.3**	**15**	**30**	3.21	*Stereo*	**20**	10	**0**	0	**-10**	*Rotary*								**FAST**	**6.5**	**0.35**
110	***Rotary Gate***	*Gate*	**1.7**	**15**	**30**	3.21	*Stereo*	**50**	25	**30%**	42%	**-10**	*Rotary*								**FAST**	**6.5**	**0.35**
111	***Extreme Rotary***	*Plate*	**0.9**	**15**	**30**	3.21	*Stereo*	**50**	25	**30%**	42%	**-10**	*Rotary*								**FAST**	**1**	**0.70**
112	***Rotated Echo***	*Plate*	**0.6**	**15**	**30**	3.21	*Stereo*	**250**	300	**68.5%**	63%	**-10**	*Rotary*								**FAST**	**5.5**	**0.70**
113	***Nightmare Echo***	*Plate*	**0.6**	**15**	**30**	3.21	*Stereo*	**30**	10	**93%**	85%	**-10**	*Rotary*								**FAST**	**5.5**	**0.70**
114	***Deep Space***	*Plate*	**6,1**	**20**	**50**	thru	*Stereo*	**210**	250	**53.5%**	50%	**0**	*Chorus*	**0.6**	**25.0**	**0.5**							
115	***Metal Geyser***	*Plate*	**0.8**	**20**	**50**	thru	*Stereo*	**210**	250	**0**	0	**0**	*Chorus*	**0.6**	**25.0**	**0.5**							
116	***Dark Shade***	*Plate*	**0.8**	**20**	**50**	thru	*Stereo*	**210**	250	**0**	0	**0**	*Flanger*	**28**	**100**	0.5	**50%**	50%	0				
117	***Smooth Voice***	*Plate*	**1.0**	**30**	**30**	11.6	*Stereo*	**15**	5	**7%**	7%	**-9**	*Flanger*	**0.6**	**74.5**	23.0	**70%**	63%	0				
118	***Vega Loop***	*Plate*	**0.6**	**30**	**5**	thru	*Stereo*	**105**	70	**7%**	7%	**-9**	*Flanger*	**0.4**	**10.0**	0	**73.5%**	70%	-5				
119	***Acoustic Dreams***	*Hall*	**3.6**	**30**	**20**	thru	*Stereo*	**233**	256	**7%**	7%	**0**	*Flanger*	**0.6**	**74.5**	23.0	**70%**	69%	0				
120	***Crazy Tremolo***	*Hall*	**6.1**	**30**	**20**	thru	*Stereo*	**93**	151	**54.5**	53	**0**	*Flanger*	**6.2**	**0**	0	**0**	78%	0				
121	***Space Tremolo***	*Plate*	**6.1**	**30**	**20**	thru	*Stereo*	**12**	24	**33.5%**	30%	**0**	*Flanger*	**4.4**	**37.0**	90.0	**95.5%**	95.5%	0				
122	***Guitar Stop***	*Plate*	**0.8**	**15**	**5**	6.94	*Stereo*	**174**	174	**9.5%**	12	**0**	*Chorus*	**0.7**	**75.5**	**53.5**							
123	***A-synch Echo***	*Plate*	**1.0**	**30**	**225**	thru	*Stereo*	**15**	11	**0.5%**	0.5%	**0**	*Flanger*	**3.1**	**0**	90.0	**85%**	85%	0				
124	***Washed Strings***	*Plate*	**1.0**	**30**	**15**	thru	*Stereo*	**163**	0	**24.5%**	0	**-1**	*Chorus*	**1.1**	**100**	**0**							
125	***Arpeggio***	*Plate*	**1.0**	**30**	**225**	thru	*Stereo*	**163**	0	**24.5%**	0	**-1**	*Flanger*	**0.7**	**100**	90.0	**85%**	85%	0				
126	***Wash Cut***	*Gate*	**2.1**	**30**	**225**	thru	*Stereo*	**163**	0	**24.5%**	0	**-1**	*Flanger*	**0.7**	**100**	90.0	**85%**	85%	0				
127	***Pad Torsion***	*Hall*	**2.4**	**13**	**0**	thru	*Stereo*	**15**	30	**0**	0	**0**	*Flanger*	**0.2**	**90.5**	0	**60.5%**	57%	0				
128	***Soft Torsion***	*Hall*	**2.4**	**15**	**0**	thru	*Stereo*	**50**	80	**64%**	56%	**0**	*Flanger*	**0.2**	**90.5**	16.0	**88.5%**	64%	-8.5				

CONTROLS PANEL



REAR PANEL



SKK768228 - IN/OUT BOARD

FX B — INPUTS — FX A

S18 · S16

L20 FLSR · L21 FLSR · L18 FLSR · L19 FLSR

R98 15K0 · R99 15K0 · R94 15K0 · R95 15K0 (1%)

C55 22P · C50 22P · R65 15K0 · R66 15K0 (1%)

R100 15K0 · R96 15K0 (1%) · C56 22P · C49 22P

IC10-A MC33078 · IC9-A MC33078

C53 47U · C37 47U

R67 18K2 · R60 18K2 (1%) · C57 1N5 · C52 1N5 (1% 2.5% 100V)

R70 6K9 · R66 6K9 (1%)

C58 22P · C54 22P · R71 10K0 · R68 10K0 (1%)

IC10-B MC33078 · IC9-B MC33078

R101 8K2 · R97 8K2 (1%)

R2 68E C20 47U · R1 68E C19 47U

CN4 — TO CPU/DSP & AD/DA BOARD CN2 — ADC IN

1 LEFT ADC IN · 2 · 3 · 4 RIGHT ADC IN

CN3 — DAC OUT — TO CPU/DSP & AD/DA BOARD CN1

8 · 7 R DAC1 OUT · 6 · 5 L DAC1 OUT · 4 · 3 R DAC2 OUT · 2 · 1 L DAC2 OUT

R54 18K2 · R59 18K2 · R3 18K2 · R9 18K2 (1% 2.5% 100V)

C34 1N5 · C36 1N5 · C6 1N5 · C9 1N5

R56 33K2 · R57 33K2 · R6 33K2 · R8 33K2 (1%)

R55 10K0 · R58 10K0 · R7 10K0 · R10 10K0 (1%)

R63 8K2 · R64 8K2 · R31 8K2 · R29 8K2 (1%)

IC6-A MC33078 · IC6-B MC33078 · IC1-A MC33078 · IC1-B MC33078

C60 100U R93 1K · C61 100U R89 1K · C43 100U R85 1K · C11 100U R81 1K

R92 10K · R88 10K · R84 10K · R80 10K

L17 FLSR · L16 FLSR · L15 FLSR · L14 FLSR · L12 FLSR · L10 FLSR · L1 FLSR

C68 100N · C66 100N

S14 · S12 · S10 · S8

FX A LEFT/MONO · FX A RIGHT · FX B LEFT/MONO · FX B RIGHT

CN6 — FOOTSWITCH

1 · 2 · 3 MIDI OUT · 4 MIDI IN — TO CPU/DSP & AD/DA BOARD CN3 — MIDI I/O

R30 1K · R28 10K · TR1 BC560 · R77 680E

L8 FLSR · C67 100N · S6

FOOT SWITCH

IC7-A 74HC04 · IC7-D 74HC04 · IC7-E 74HC04 · IC7-F 74HC04 · IC7-B 74HC04 · IC7-C 74HC04

R5 4K7 · C40 100N · DS 6N138 · D5 4148 · R27 4K7

L6 FLSR · L7 FLSR · L2 FLSR · L3 FLSR · L4 FLSR · L5 FLSR

R76 330E · R73 330E · R72 330E · R74 330E · R75 330E

S5 · S3 · S4

MIDI IN · MIDI OUT · MIDI THRU

CN1 — PANEL SUPPLY — TO CONTROLS PANEL BOARD CN1

1 +5V · 2 LGND

CN2 — CPU SUPPLY — TO CPU/DSP & AD/DA BOARD CN4

6 +5V · 5 LGND · 4 LGND · 3 -12V · 2 +12V · 1 AGND

C38 47U · C39 100N · IC7-G 74HC04

+12V · -12V

C5 100N · C15 47U · C3 100N · C16 47U · IC1-C MC33078

C8 100N · C18 47U · C7 100N · C17 47U · IC6-C MC33078

C35 100N · C48 100N · IC9-C MC33078

C51 100N · C62 100N · IC10-C MC33078

C58 100N · C64 100N

S1 · C10 100N · R4 4K7 · P1 · P2

PCB#313070

DRW G.BOCCATO	DWG# 550667	PCB# 313070	GENERALMUSIC S.p.A. ITALY
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APP. F.GAZZILLI	REV: A	IN/OUT BOARD	

SKK768254 SUPPLY BOARD

SKK237085 - TRANSFORMER (EU)
230Vac/15.5Vac 10W
SKK237086 - TRANSFORMER (US)
115Vac/15.5Vac 10W

MAINS (EU)
230Vac 50/60Hz +/-15%
MAINS (US)
115Vac 50/60Hz +/-15%

F1 120 °c

CN1 · D1 1N4002 · D2 1N4002 · D3 1N4002 · D4 1N4002 · C2 100N · C1 4700U

CN2 — TO CPU/DSP & AD/DA BOARD CPU SUPPLY

SKK768229 - CONTROLS PANEL BOARD

+5V

C11 100N

TR1 BC857 · TR2 BC857 · TR3 BC857

R16 10K · R15 4K7 · R18 10K · R17 4K7 · R20 10K · R19 4K7

DL12 · DL13 · DL14

R41 10K · DL6

R49 680E · R48 680E · R47 680E · R46 680E · R42 680E · R45 680E · R43 680E · R44 680E

CN2 — FROM/TO CPU/DSP & AD/DA BOARD CN5 — CONTROLS PANEL I/O 2

P01 1 · P19 3 · P05 5 · P07 7 · P09 9 · P11 11 · P13 13 · P15 15 · P17 17 · INT0 19

2 P02 · 4 P04 · 6 P06 · 8 P08 · 10 P10 · 12 P12 · 14 P14 · 16 P16 · 18 P18 · 20 INT1

R40 10K · R39 10K · R38 10K

14X 1N4148 or equivalent

D2 RECALL SW1 · D4 BYPASS SW10 · D3 STORE SW2 · D5 GLOBAL SW11 · D6 MIDI SW3 · D8 MACHINE SW13 · D7 MIX SW12 · D9 A REV SW4 · D11 A DLY SW5 · D13 A MOD SW6 · D10 B REV SW14 · D14 B MOD SW15 · D12 B DLY SW7 · D15 PARAM SW9

SW8 ENCODER

IC3-F 74HC14 · IC3-E 74HC14

R21 5K6 · R22 5K6 · C4 10N · R8 5K6 · R7 5K6 · C3 1N

CN1 — FROM/TO CPU/DSP & AD/DA BOARD CN6 — CONTROLS PANEL I/O 1

P20 1 · P21 3 · P00 5 · P25 7 · P27 9 · P23 11 · NC 13

2 P01 · 4 P22 · 6 P24 · 8 P26 · 10 P28 · 12 P29 · 14 INT2

FB DEPTH DL34 · FREQ DL33 · HF DL32 · FB DL26 · DEL TIME DL25 · HF DL24 · FB DL21 · ROOM DL20

REV TIME DL19 · B MODULATION DL31 · B DELAY DL30 · B REVERB DL29 · A MODULATION DL18 · A DELAY DL17 · A REVERB DL16 · B DL28

A DL15 · DRY/WET DL27 · OUT DL23 · - DL22 · MIDI SYSEX DL11 · MIDI OUT DL10 · MIDI CH DL4 · MIDI IN DL5

B SIGNAL/CLIP R DL7 G DL6 · A SIGNAL/CLIP R DL1 G DL0 · GLOBAL DL9 · STORE DL3 · BYPASS DL8 · RECALL DL2

24X 680E

R60 R59 R58 R51 R56 R54 R53 R52 · R32 R24 R25 R27 R26 R50 R31 R28 · R23 R61 R57 R64 R63 R5 R33 R12 · R9 R3 R2 R1 R13 R14 R11 R10

IC5-A 74HC4094 · IC4-A 74HC4094 · IC2-A 74HC4094 · IC1-A 74HC4094

+5V +5V · R56 10K · R29 10K · R37 100E · R38 100E · R35 100E · R36 10K

IC3-B 74HC14 · IC3-C 74HC14 · C5 47P · C6 47P

D1 4148 · R34 100K · C9 10U

IC3-D 74HC14 · IC3-A 74HC14

IC1-B 74HC4094 · IC2-B 74HC4094 · IC3-G 74HC14 · IC4-B 74HC4094 · IC5-B 74HC4094

C1 100N · C2 100N · C6 100N · C7 100N · C10 100N · C12 100N · C13 10U

CN3 — FROM MAIN BOARD CN1 — POWER SUPPLY

+5V 1 · LGND 2

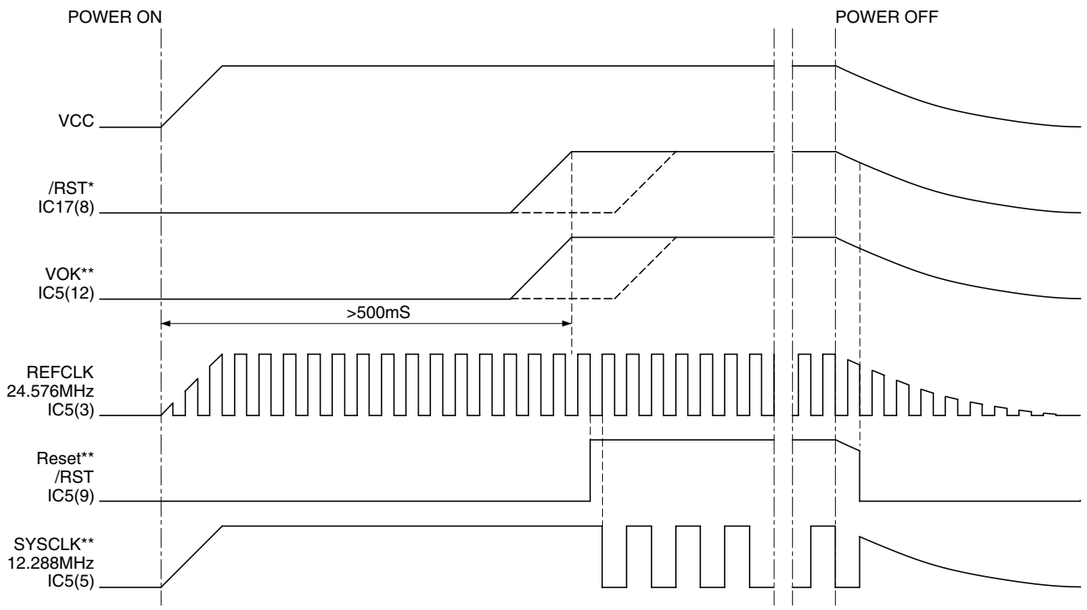
PCB#313071

DRW G.BOCCATO	DWG# 550668	PCB# 313071	GENERALMUSIC S.p.A. ITALY
CKD G.RICCI	DATE 27/03/00	SCHEMATIC DIAGRAM FX 24	ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC.
APP. F.GAZZILLI	REV: A	CONTROLS PANEL BOARD	

SKK768225
CPU/DSP & AD/DA BOARD

DRW G.BOCCATO	DWG# 768225	PCB# 313069	GENERALMUSIC S.p.A. ITALY
CKD G.RICCI	DATE 13/02/01	SCHEMATIC DIAGRAM	ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC.
APP. F.GAZZILLI	REV: D	CPU/DSP & AD/DA BOARD	

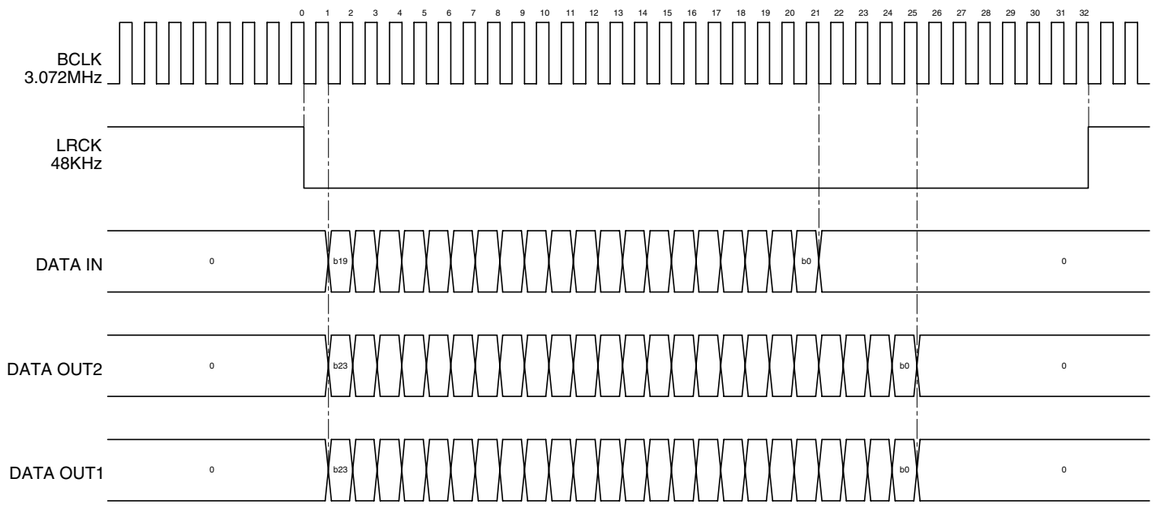
POWER & RESET TIMING



* valid for pcb#313069 only.

** valid for pcb#313069/1 only.

AD/DA TIMING



DRW BOCCATO	DWG# 550670	PCB#	GENERALMUSIC S.p.A. ITALY
CKD L.GIBIN	DISK: 6 PRT: 1/1	TIMING TABLE	ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC.
APP. GAZZILLI	REV: 20/02/01		

Spare Part List

Code		Description
Accessories		
370534		"Lem" Adhesive Logo
277348		Owner's Manual (Italian-English)
SKK180792		Adhesive Preset Table
130274		Mains Cable (EU)
130276		Mains Cable (US)
Assembly		
SKK667723		Top Chassis
SKK667722		Bottom Chassis
SKK667721		Controls Panel
SKK657276		Display Screen
SKK347394		Rubber Switch Actuator
SKK340961		Encoder Knob
SKK237086		115/15.5Vac 10W Transformer (US)
SKK237085		230/15.5Vac 10W Transformer (EU)
120827		10mm Threaded Spacer
120582		M3 Black Nut
120481		3mm Black Shakeproof Washer
120467		4.2x10x0.5 Nylon Washer
120451		3.2x7x0.5 Black Washer
120276		B2.9x6.5mm Screw
120029		M3x6tc Black Screw
120025		M3x10tsp Black Screw
120005		M3x10tc Screw
110614		Mains Socket
110285		4A 250Vac Bipolar Power Switch
020491		100nF 10% 250Vac Polyester Capacitor
Supply Board		
SKK768254		**Supply Board (Pcb#313088)**
080156	*	1N4002 1A 100V Rectifier Diode
030858	*	4700uF 25V 20% Vert Electrolytic Capacitor
010595	*	100n 50V -20+80% Ceramic Cap. Multilayer
In/Out Board		
SKK768228		**In/Out Board (Pcb#313070)**
230569	*	FL5R200PNT EMI Coil For Signal
160098	*	Jump Length 5.1mm
160093	*	Jump Length 10mm
141012	*	8 Contacts Vert Female Connector
141010	*	4 Contacts Vert Female Connector
140217	*	Jack Slim Horizontal S-F Socket
140212	*	5 Poles Din Horizontal Female Socket
120857	*	Vertical Male Faston 6.3mm
100919	*	MC33078 Dual LN Operational Amplifier
100602	*	74HC04 Hex Inverter
100035	*	6N138 Optocoupler
090194	*	BC560C TO92 LN Pnp Transistor
080103	*	1N4148 100mA 75V Signal Diode
052048	*	10K 1/8w 5% Resistor
052047	*	8K2 1/8w 5% Resistor
052044	*	4K7 1/8w 5% Resistor
052036	*	1K 1/8w 5% Resistor
052034	*	680E 1/8w 5% Resistor
052030	*	330E 1/8w 5% Resistor
052022	*	68E 1/8w 5% Resistor
050491	*	10K 1/4W 5% Resistor
050451	*	4K7 1/4W 5% Resistor
050371	*	1K 1/4W 5% Resistor
042665	*	33K2 1/4W 1% Metalized Film Resistor
042632	*	18K2 1/4W 1% Metalized Film Resistor
042625	*	15K0 1/4W 1% Metalized Film Resistor
042605	*	10K0 1/4W 1% Metalized Film Resistor
030485	*	100u 25V 20% Vert Electrolytic Capacitor
030403	*	47u 25V 20% Vert Electrolytic Capacitor
022002	*	1n5 2.5% 100V MKP Polypropylene Capacitor
010595	*	100n 50V -20+80% Ceramic Cap. Multilayer
010271	*	22p 50V 10% CL2 Ceramic Capacitor
Controls Panel		
SKK768229		**Controls Panel (Pcb#313071)**
340856	*	6,4mm Led Spacer
340825	*	2.8mm Led Spacer
141018	*	20 Contacts Vert Female Connector
141015	*	14 Contacts Vert Female Connector
140529	*	Microswitch 12V 50mA 0.25mm
110261	*	Dial Encoder with Snap
103028	*	74HC4094M1R SOIC 8bit Shift/Latch Register
103000	*	74HC14D Soic Hex Inverter Schmitt Trigger
091001	*	BC857 TO236 Smd Pnp Transistor
081000	*	PMLL4148 Smd 100mA 75V Signal Diode
080742	*	Led 3mm Wide Diffused Red-Grn
080717	*	HDN1105 7 Segments Display
080705	*	Led 3mm 60deg Diffused Red
055060	*	100K 1/16w 5% Smd Resistor 0603
055048	*	10K 1/16w 5% Smd Resistor 0603
055045	*	5K6 1/16w 5% Smd Resistor 0603
055044	*	4K7 1/16w 5% Smd Resistor 0603
055037	*	1K2 1/16w 5% Smd Resistor 0603
055024	*	100E 1/16w 5% Smd Resistor 0603
052038	*	1K5 1/8w 5% Resistor
030246	*	10u 25V 20% Low Prof Vert Electrolytic Capacitor
011260	*	100n 50V 10% Smd CL2 Y5V 0603
011248	*	10n 50V 10% Smd CL2 X7R 0603
011220	*	47p 50V 10% Smd CL2 X7R 0603
Cpu/Dsp & AD/DA Board		
SKK768225		**Cpu/Dsp & AD/DA Board (Pcb#313069)**
550685	*	27C4001D Eprom 4mbit "FX24 Firmware"
250524	*	25x25mm Thermoconductor Adhesive
231000	*	BLM21A102STP Smd EMI Coil For Signal
230523	*	80-85uH Switching Dual Coil
177690	*	Heatsink
171039	*	Ground Leaf
141018	*	20 Contacts Vert Female Connector
141015	*	14 Contacts Vert Female Connector
141012	*	8 Contacts Vert Female Connector
141010	*	4 Contacts Vert Female Connector
140606	*	32pin IC Socket
120276	*	B2.9x6.5mm Screw
106003	*	MAX709 Power Monitor With Reset
106001	*	MC33078P SOIC Dual Low Noise Op. Amp.
105008	*	RED208 Risc Cpu and Dsp
104021	*	AT24C32N SOIC 32Kbit Serial Access EEprom
104009	*	HM5118160ALJ 16Mbit Dram Ta=70nS
103043	*	PCM1716 24 Bit Stereo Dac
103042	*	PCM1800 20 Bit Stereo Adc
103010	*	74HC04D SOIC Hex Inverter
103007	*	74HC74D SOIC Dual Flip-Flop
103000	*	74HC14D Soic Hex Inverter Schmitt Trigger
100901	*	L4962 5-40V 1.5A Switching Regulator
081000	*	PMLL4148 Smd 100mA 75V Signal Diode
080170	*	BYV27 2A 100V Fast Recovery Diode
080156	*	1N4002 1A 100V Rectifier Diode
055103	*	470E X4 1/16w 5% Smd Resistor Array
055102	*	33E X4 1/16w 5% Smd Resistor Array
055101	*	4K7 X4 1/16w 5% Smd Resistor Array
055100	*	100E X4 1/16w 5% Smd Resistor Array
055060	*	100K 1/16w 5% Smd Resistor 0603
055056	*	47K 1/16w 5% Smd Resistor 0603
055054	*	33K 1/16w 5% Smd Resistor 0603
055050	*	15K 1/16w 5% Smd Resistor 0603
055048	*	10K 1/16w 5% Smd Resistor 0603
055044	*	4K7 1/16w 5% Smd Resistor 0603
055043	*	3K9 1/16w 5% Smd Resistor 0603
055039	*	1K8 1/16w 5% Smd Resistor 0603
055038	*	1K5 1/16w 5% Smd Resistor 0603
055035	*	820E 1/16w 5% Smd Resistor 0603
055032	*	470E 1/16w 5% Smd Resistor 0603
055030	*	330E 1/16w 5% Smd Resistor 0603
055028	*	220E 1/16w 5% Smd Resistor 0603
055024	*	100E 1/16w 5% Smd Resistor 0603
055020	*	47E 1/16w 5% Smd Resistor 0603
055012	*	10E 1/16w 5% Smd Resistor 0603
050171	*	22E 1/4W 5% Resistor
042605	*	10K0 1/4W 1% Metalized Film Resistor
042260	*	0E 1/4W Resistor
031007	*	10u 16V 20% Smd Electrolytic Tantalium Capacitor
030950	*	470u 16V 20% Low Esr Vert Electrolytic Capacitor
030805	*	2200u 25V 20% Vert Electrolytic Capacitor
030715	*	1000u 6v3 20% Vert Electrolytic Capacitor
030485	*	100u 25V 20% Vert Electrolytic Capacitor
030245	*	10u 50V 20% Vert Electrolytic Capacitor
030082	*	2u2 50V 20% Vert Electrolytic Capacitor
030005	*	1u 50V 20% Vert Electrolytic Capacitor
021018	*	33n 63V 10% MKT Polyester Capacitor
021004	*	2n2 63V 10% MKT Polyester Capacitor
011260	*	100n 16V 10% Smd CL2 X7R 0603
011232	*	470p 16V 10% Smd CL2 X7R 0603
011230	*	330p 16V 10% Smd CL2 X7R 0603
011220	*	47p 16V 10% Smd CL2 X7R 0603
011214	*	15p 16V 10% Smd CL2 X7R 0603
011103	*	1u 16V 10% Smd CL2 XTR 1206
010722	*	24.576MHz Quartz Resonator
Wiring Connections		
841263		8 Wires 3cm Length Flat Cable
841206		4 Wires 20cm Length Flat Cable
840826		14 Wires 15cm Length Flat Cable
840799		4 Wires 7.5cm Length Flat Cable
840722		20 Wires 10cm Length Flat Cable