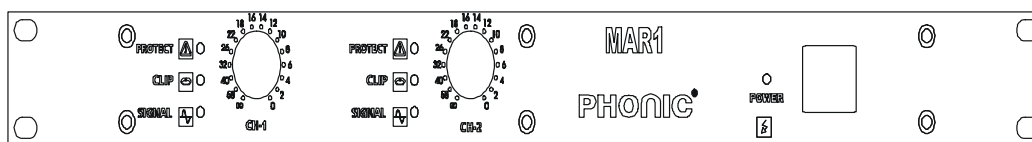


# MAR1

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## Power Amplifier



## Service Manual

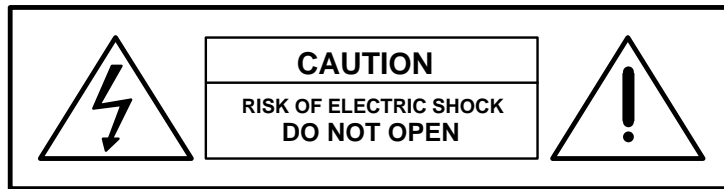
# PHONIC

# SAFETY FIRST!

**WARNING - TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

WATER AND ELECTRICITY DO NOT MIX. Keep this unit away from water. If water or other liquids are spilled on or into this unit, unplug the power cord immediately from the wall socket (with DRY HANDS) and get a qualified service technician to check it out before using. Keep this unit away from heaters, radiators and other heat producing devices.

DO NOT ATTEMPT TO SERVICE THIS UNIT. ONLY A QUALIFIED SERVICE TECHNICIAN SHOULD OPEN THIS UNIT FOR SERVICING.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated " dangerous voltage: within the product s enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**CAUTION:** TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

**KEEP IT CLEAN:** Dust, dirt and debris can interfere with the performance of this product. Make a special effort to keep this unit away from dusty, dirty environments. Cover the unit when not in use. Dust it regularly with a soft, clean brush. Careful attention to these details will be time well spent, and this product will reward you with years of trouble free operation.

## Introduction

Congratulations on your purchase of the Phonic MAR 1 Reference Amplifier. Like other Phonic MAR series power amplifiers – MAR 2/4/6, this unit is designed to provide a good combination of power, audio clarity, reliability and durability. Especially, optimized for studio monitoring applications and moderate-power live performance setups, the amps main features include:

- 150 watts per channel into 4 ohms, 100 watts per channel into 8 ohms
- Front panel LED Indicators for Protect, Clip & Signal
- Detented dB gain controls
- Built-in protection system for short circuit, DC, and temperature monitoring
- Power-up muting
- -26dB signal presence LEDs on each channel
- Quality Neutrik combo Input connectors for professional use
- Stereo/Parallel switch
- Ground floating switch
- Massive, custom-designed extruded heat sinks ( individual for each channel) for cool operation
- No Ventilation fan is needed, allowing for quiet operation and reduced ambient noise in the studio.
- Extremely low noise and distortion, suitable for quiet applications such as recording studio, church and museum.

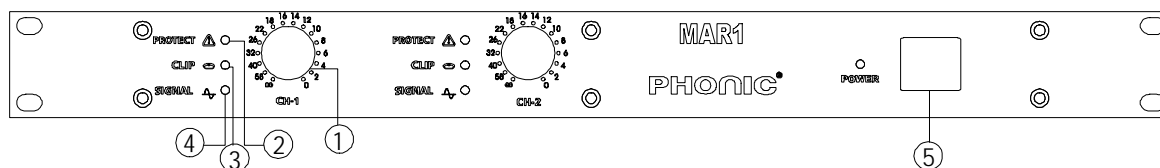
## Precautions

1. When first powering-up the amp, keep the amplifier Gain Controls all the way off, in order to block potentially damaging or annoying sounds caused by defective cables or hookups. When turning up the Gain, do it gradually, until normal operation is verified. These precautions are necessary with all high-power amplifiers, since they have enough power to blow most speakers in abnormal situations.
2. Check the AC Voltage before connecting the AC plug.
3. The amplifier is protected from surges in power-line voltage by the fuses. Should your unit ever fail to power-up, first unplug the power cord, and then replace the fuse with exact type and value.

## About This Manual

**Please be reminded that a power amplifier is a high-current, high-power device and should be treated with respect and care. Please read this manual before connecting and operating your unit and file it in a safe place for future reference.**

# MAR 1 Power Amplifier



## Front Panel Description

### 1. Gain Controls

These two knobs are the level controls for Channel one and two respectively. Turning clockwise will increase its gain, and counter clockwise will decrease its gain. Please always power-up with the volume all the way down, and increase volume slowly to make sure that no conditions exist which could annoy your audience or harm your speakers.

### 2. Protect LED Indicator

The MAR1 features several types of protection to prevent damage to the circuitry during turn-on or fault conditions. If the LEDs light up, this indicates that one of the various protections is safeguarding the different sections of the amplifier and in these cases, the power output is normally switched off until normal operating conditions are restored.

- Loudspeaker protection: in the event of malfunction, a sensor located on the power outputs is able to break the circuit avoiding that current peaks reach the speakers and damage them.

- Thermal protection on the heatsink: If the amp overheats, thermal shutdown protects the circuitry until the temperature is reduced to a safe level.
- Short circuit protection: The **Protect LED Indicator** will also light up if the speaker terminals are short circuited, or the impedance of the load is too low. In these circumstances, the Protect LED will stay on until the fault condition is rectified.

**Some protection situations require the amplifier to be switched off and then back on for normal operating conditions to be restored.**

### 3. Clip LED Indicator

The LEDs light up at clipping status, whenever any conditions occur that could leak to non-linearity, such as an out-of-spec load and waveform distortion. Because of the MAR 1's ability to enter and exit clipping with as few audible artifacts as possible, you may not hear any distortion even if the indicator flashes. In general, a few flashes every now and then will not be a problem. However, if the LEDs flash often or remain on for any extended period of time, then turn down the volume controls to reduce the signal level going to the MAR 1. If this doesn't

solve the problem, check your output cables and speakers.

## 4. Signal “Status” LED Indicator

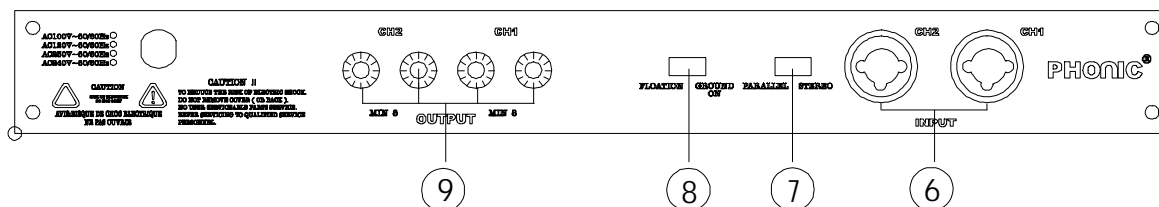
Each channel of the MAR 1 features a signal LED to show that there is an audio signal at the input to the channel. The threshold for the indicator is  $-26$  dB, which should be enough to avoid noise triggering the LED.

## 5. Power Switch

The power **ON/Off** switch with an LED indicator.

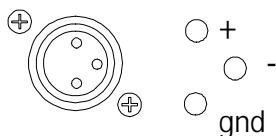
**Always start with Gain Control (1) all the way down before powering-up to avoid abnormal sound from defective cables or hookups.**

## Back Panel Description



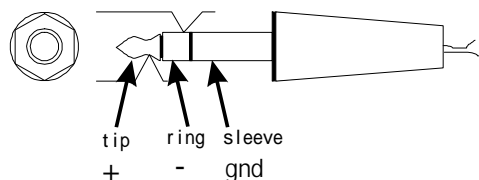
## 6. Ch1/Ch2 Input (Neutrik Connector)

Quality Neutrik Connectors are provided for balanced XLR and 1/4" inputs, which are commonly used for both mobile and installation set-ups. They provide a good combination of ease of connection and resistance to corrosion. The XLR inputs are wired as per the following convention:



These type of jacks feature on much audio equipment and are convenient if the amp is frequently connected and disconnected, such as for mobile set-up. The plugs used should be wired as per

the following convention:



## 7. Stereo/ Parallel Switch

In **Stereo** operation, two separate signals are treated separately by Channels 1 and 2 of the amplifiers.

In **Parallel** operation, One signal is treated by both channel 1 and 2 of the amplifier. In other words, a signal connected to **Input Ch1** or **Ch2** (6) is sent to both **Output Ch1** and **CH2** (9).

**This switch should be used when the**

Amplifier is off; otherwise the speakers' components could be damaged.

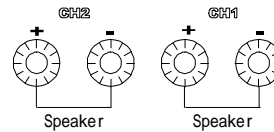
to keep the switch in the “Ground On” position,

## 8. Ground Lift Switch

This switch allows the circuit and chassis grounds to be separated in case on a ground conflict. In normal use the switch should be in the **Ground On** position. Lifting the ground (**Floating** position) may resolve the ground conflict, but which means that circuit grounding depends on other connected components. Deficiencies in other components' grounding will affect the sound and a serious electric fault with the amplifier could damage other components in the system.

**For the best combination of safety and performance, it is highly recommended**

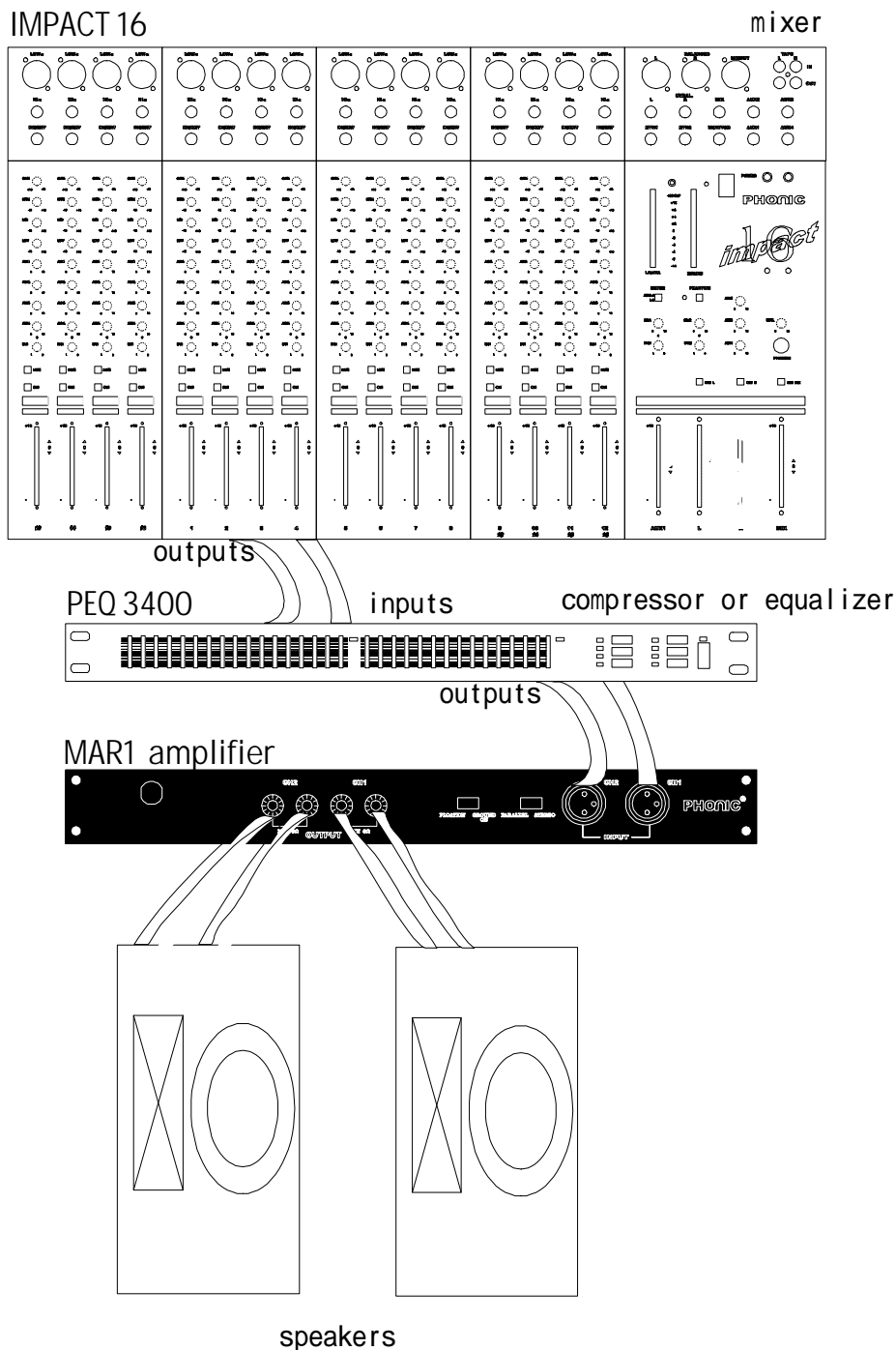
## 9. Binding Post Output Ch1/ Ch2



These are suitable for banana plugs, spade lugs or bare wires. Spade lugs and bare wires should both be screwed down tightly to exclude oxygen, and care should be taken to avoid loose strands of wire that may cause short circuits.

## Hook-up #1 Studio Monitor Amp/ Sound Reinforcement

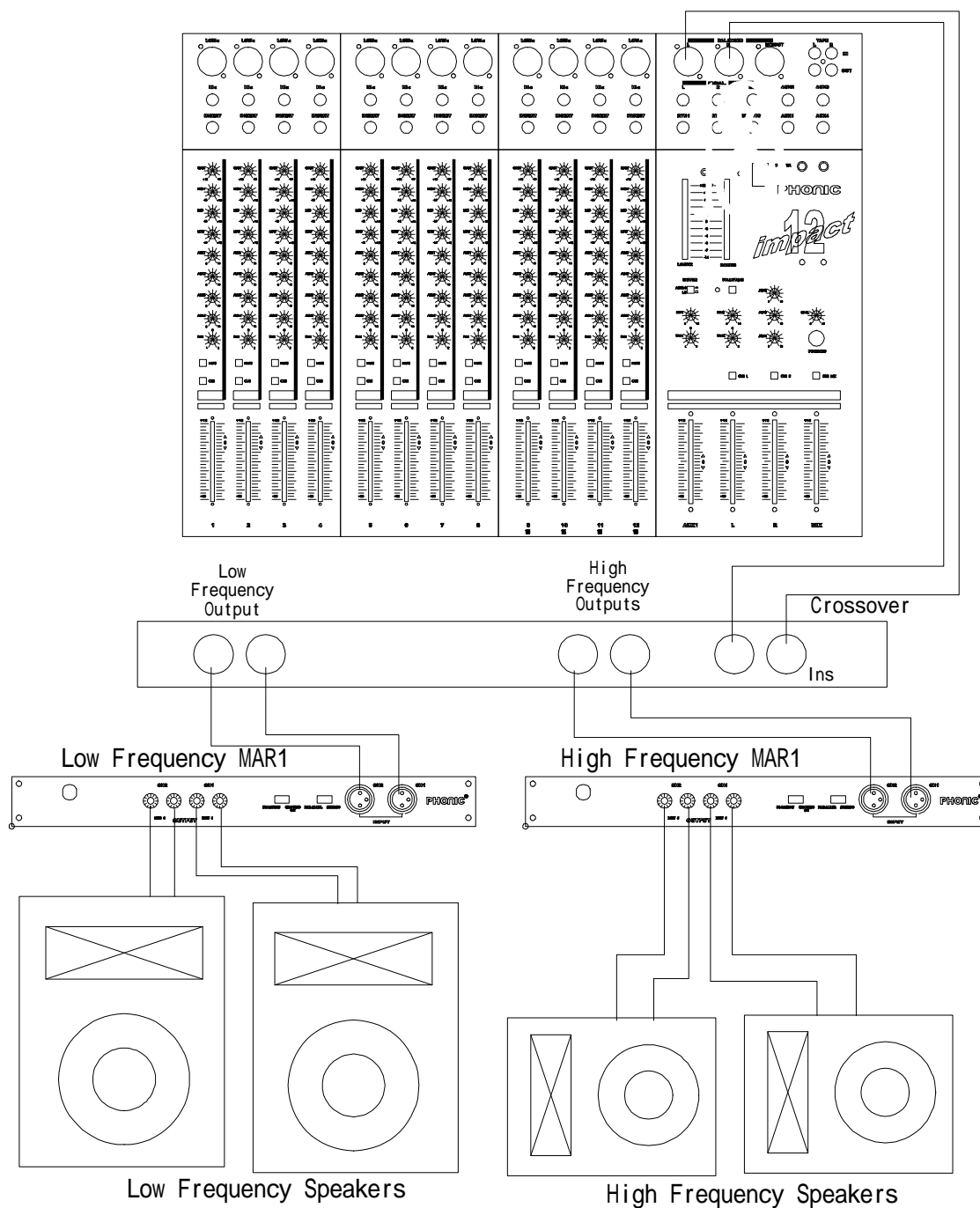
The MAR1 is ideal for driving near-field or other reference speakers. For auditorium and live music use, the MAR 1 has sufficient power to drive a set of small-to-medium size club speakers.



## Hook-up #2 Bi-Amp Sound Reinforcement

Bi-amplification often provides better live sound and greater efficiency by splitting the audio signal into two different channels. One MAR1 drives a low frequency speaker system and the other, a high frequency speaker system.

### Impact 12



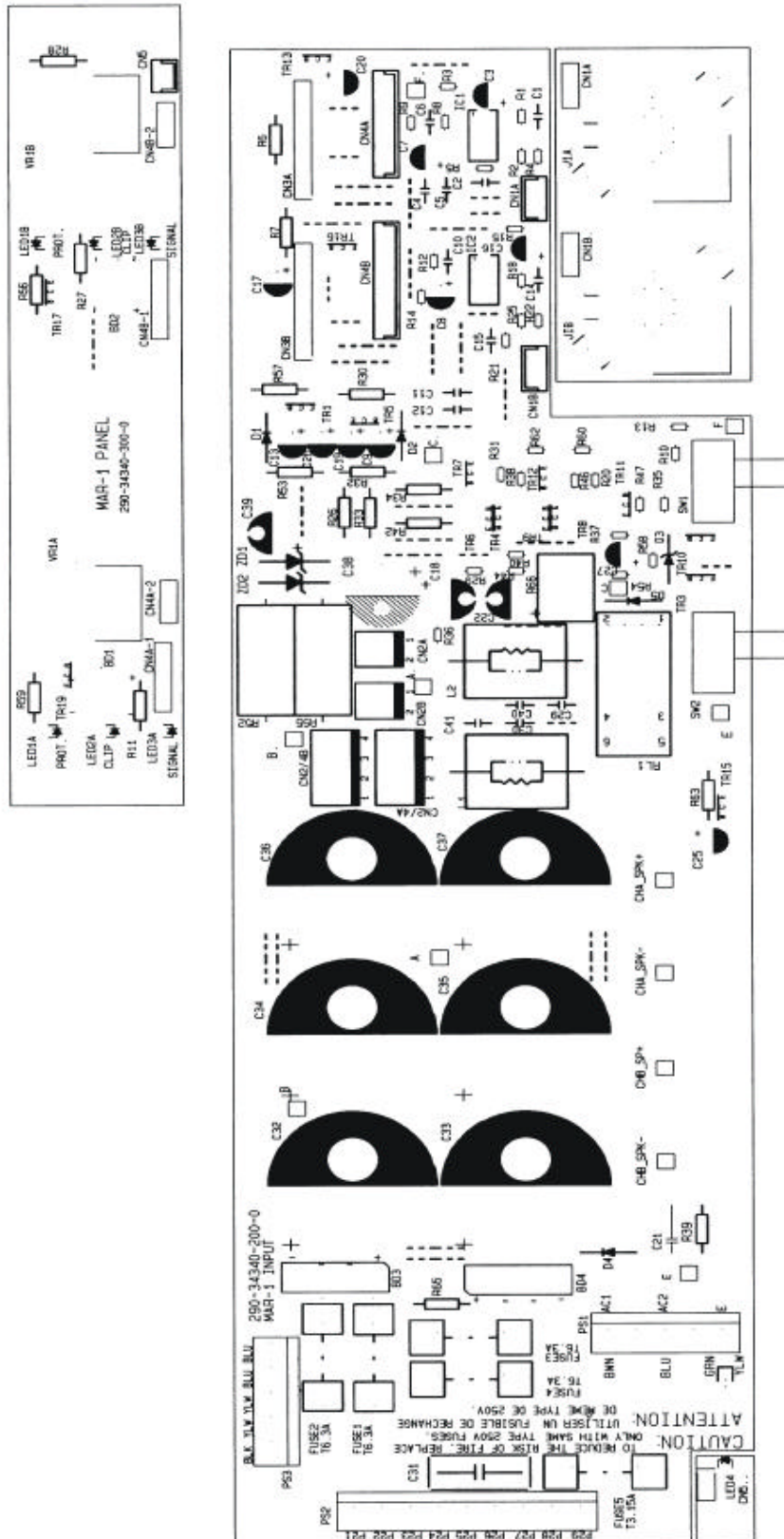


## Specifications

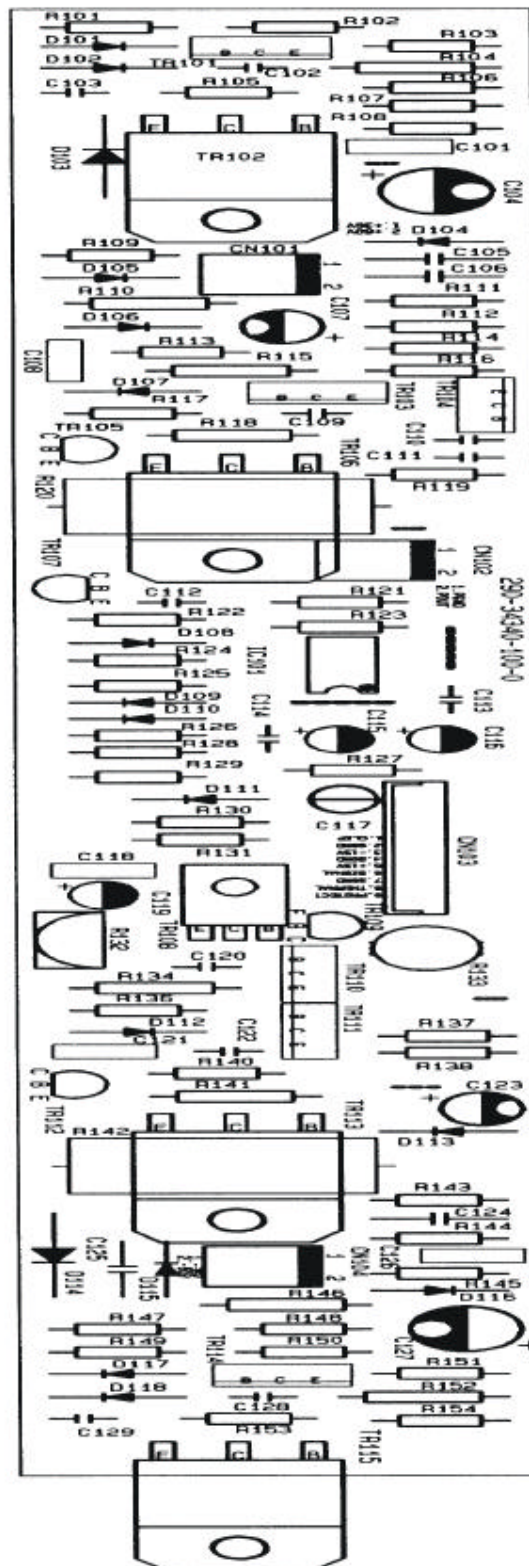
<b>Frequency response</b> (1W/ 8 ohms)	20 – 20kHz ( $\pm 1$ dB)
<b>Power bandwidth</b> (100W/ 8 ohms)	20 – 20kHz ( $\pm 1$ dB)
<b>Total harmonic distortion</b>	< 0.3 % (100W/8 ohms, 10Hz – 20kHz) <0.5 % (120W/4 ohms, 10Hz – 20kHz)
<b>Signal to noise ratio</b> (IHF-A)	> 100 dB
<b>Slew rate</b>	25 V/us
<b>Damping factor</b> (Rate output: 100W/8ohms @1kHz)	> 150
<b>Crosstalk</b> (Rate output: 100W/8ohms @1kHz)	>75 dB
<b>Rated Power</b> (8 ohms, both channel driven)	100W
<b>Max. Output Power</b>	
4 ohms, 1kHz, 1% T.H.D. both drive	150W
8 ohms, 1kHz, 1% T.H.D. both drive	120W
<b>Input sensitivity</b> 8 ohms, 1kHz, @ rated power 100W	0.775V
<b>Input impedance</b>	30k ohms (balanced) 15k ohms (unbalanced)
<b>Voltage Gain</b>	31.2 dB
<b>Max. Noise</b>	<0.6 mV
<b>Protection circuits</b>	<ul style="list-style-type: none"><li>● Output offset voltage protection</li><li>● Heat sink overheat protection</li><li>● Transformer overheat protection</li><li>● Load shorting protection</li><li>● Power on/off protection</li></ul>
<b>AC power requirement</b>	120V/ 60Hz or 230V/50Hz
<b>Dimensions (mm)</b>	480x338x54(WxDxH)
<b>Net Weight</b>	9.5 Kg

E & OE. Due to continual product development, all features and specifications subject to change without notice

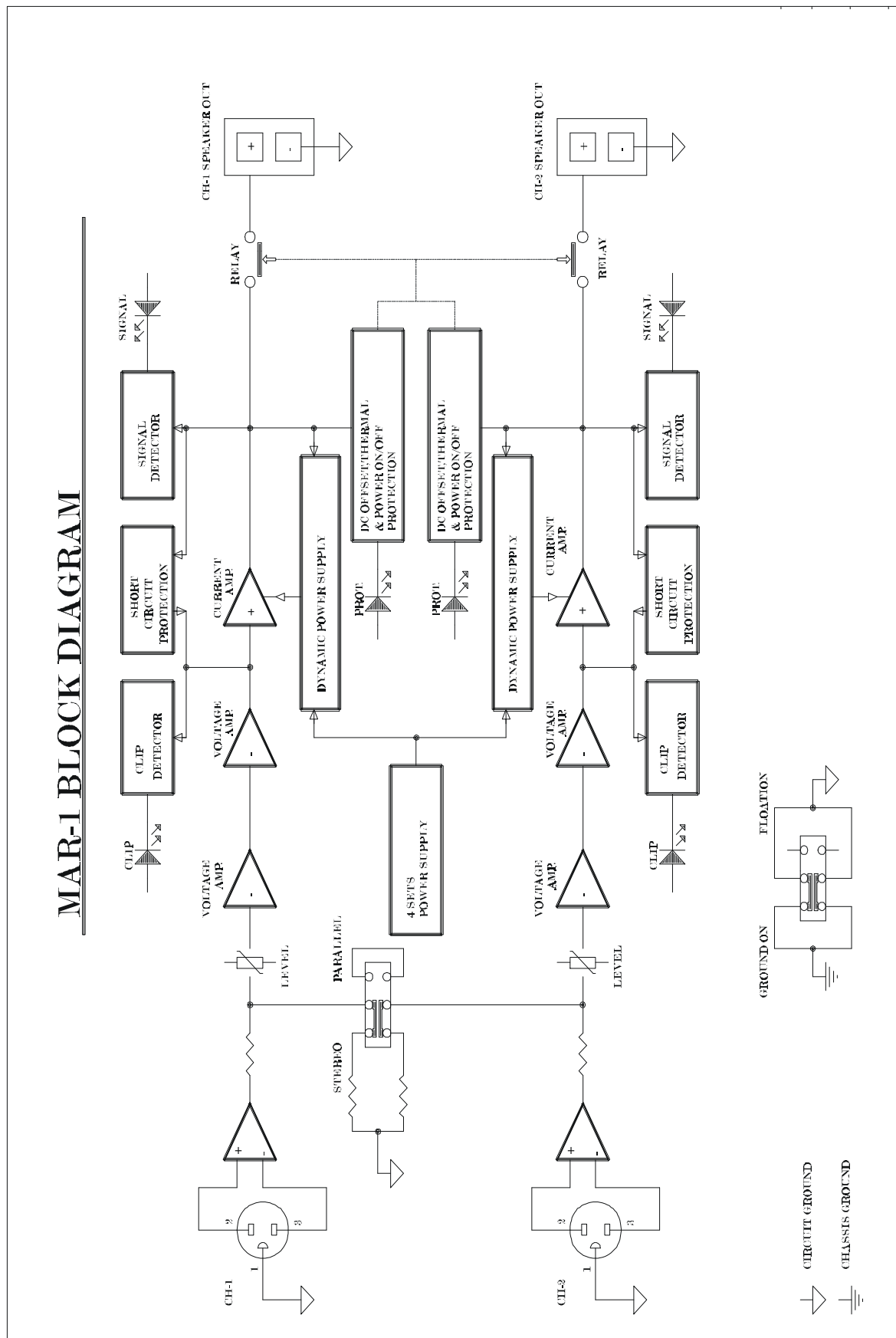
# PC-Board Layout MAR1 Input / Output & Power Supply Board



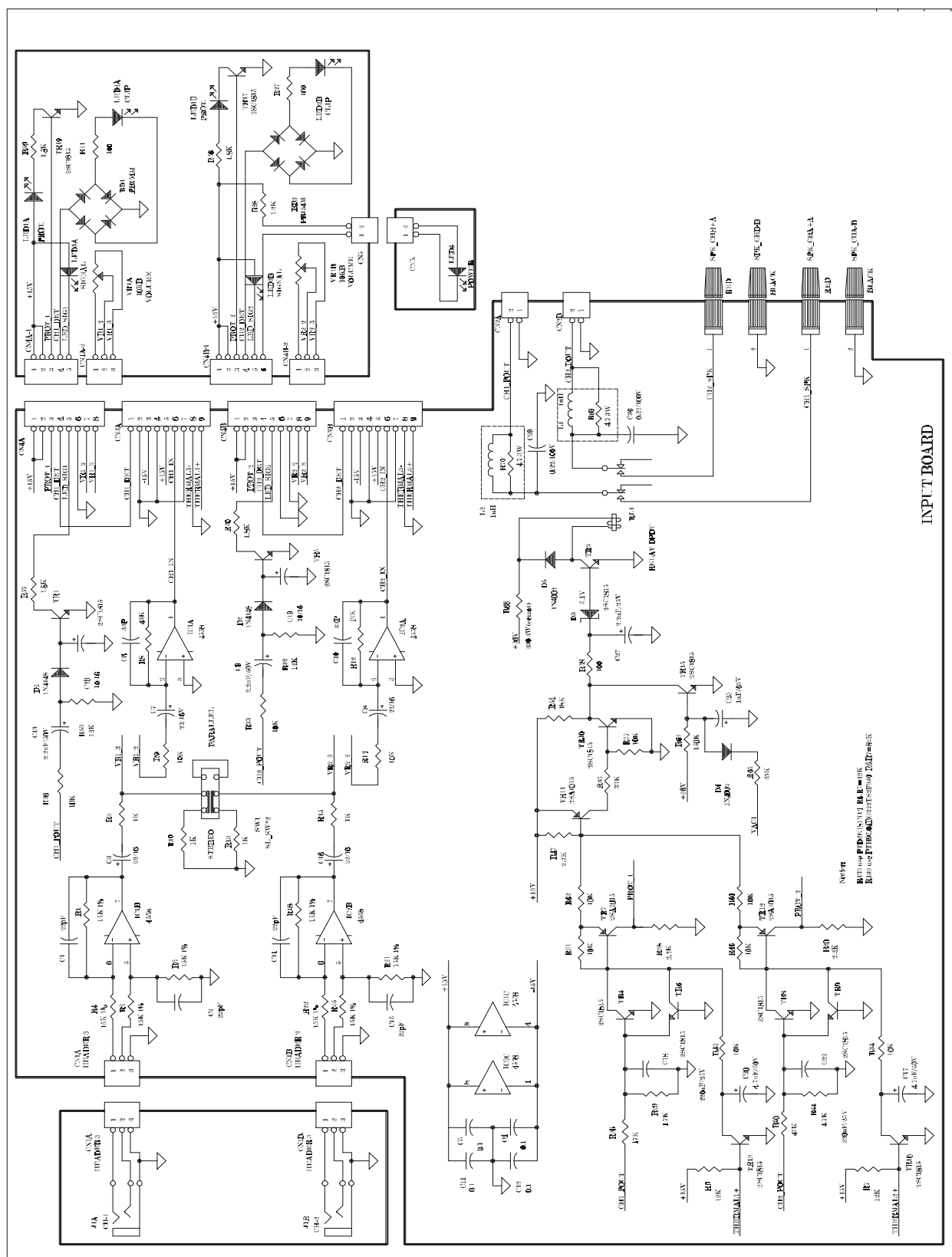
# PC-Board Layout MAR1 Power Amplifier Board



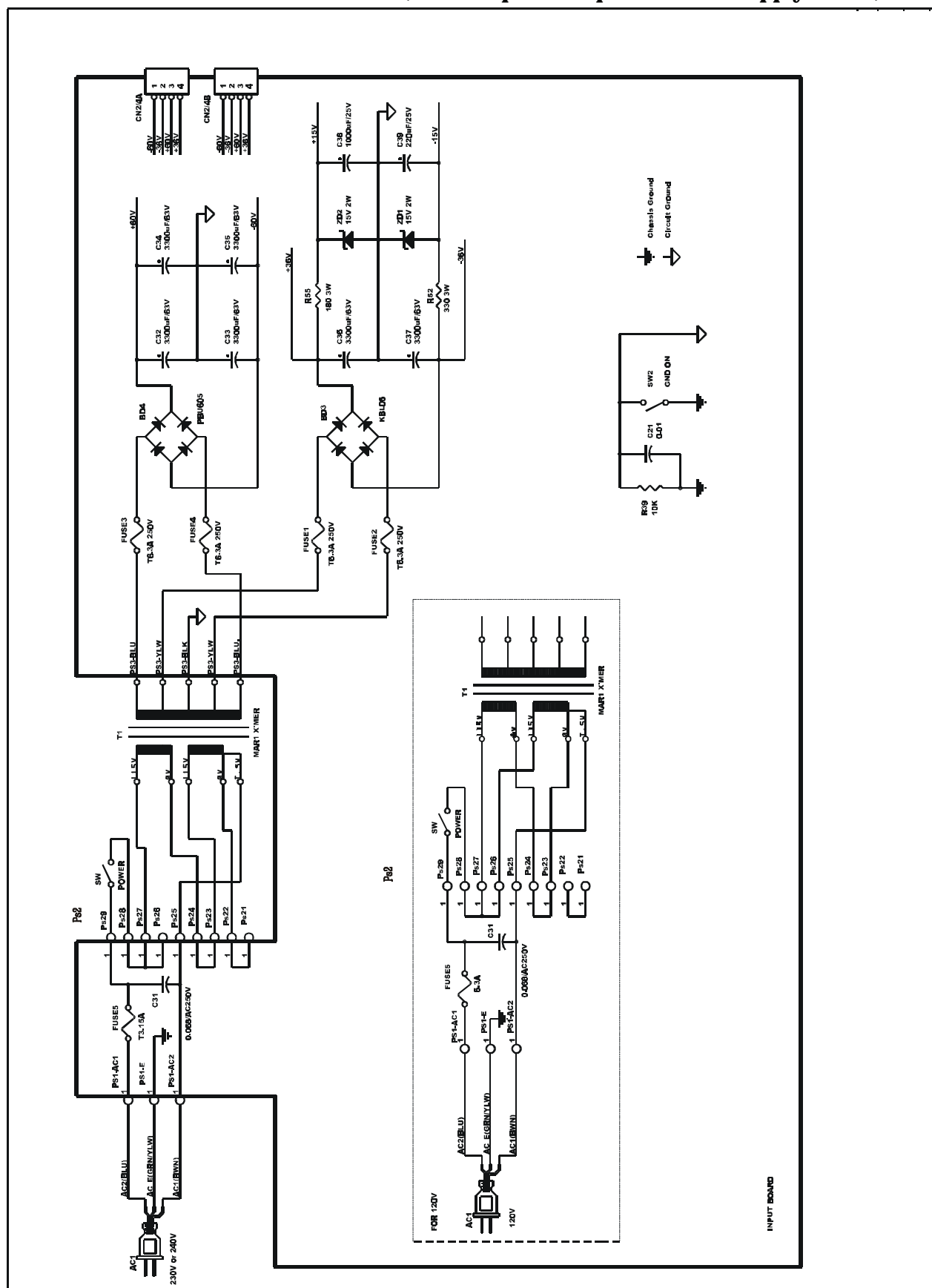
# MAR1 BLOCK DIAGRAM



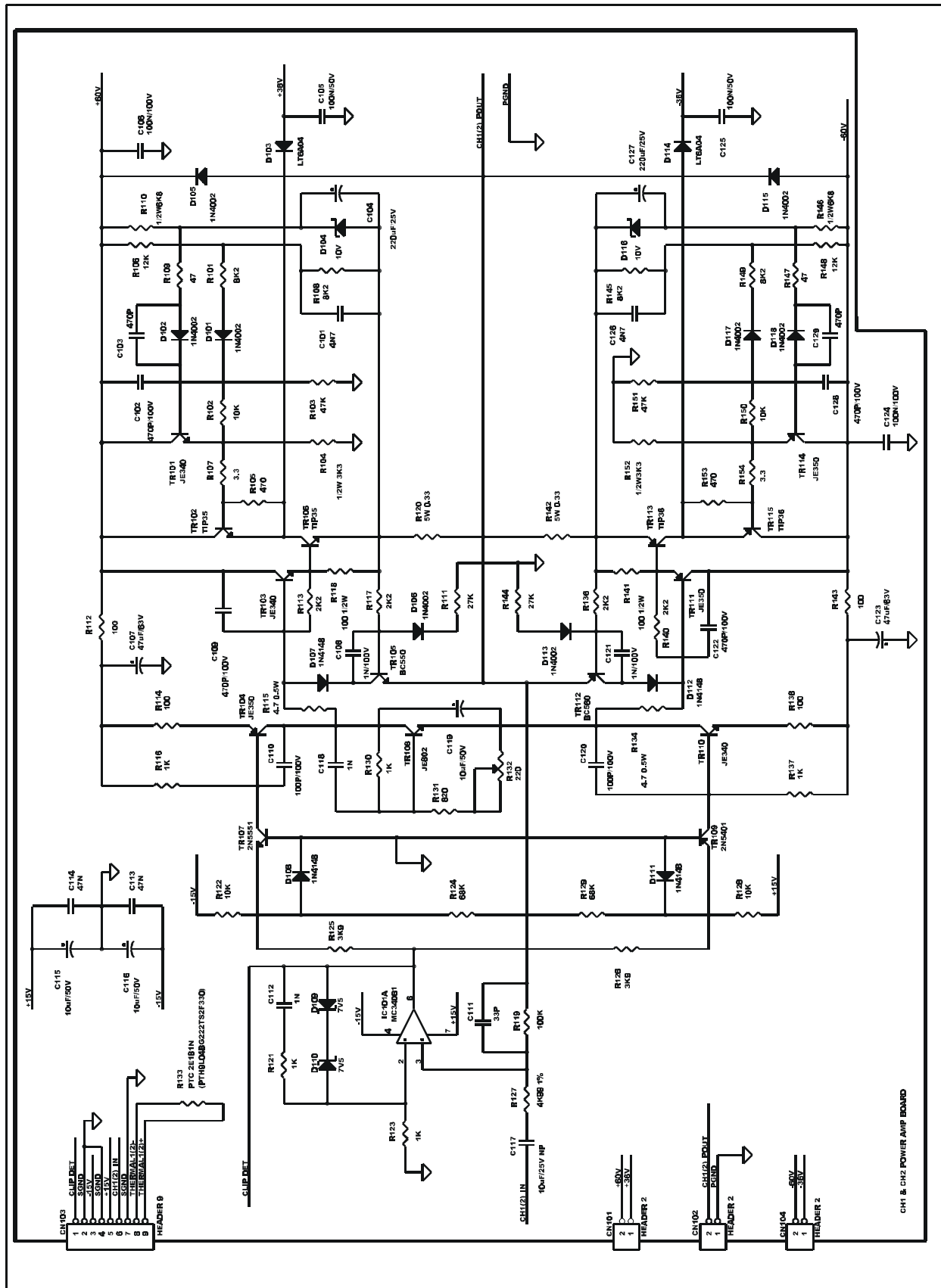
**(MAR1 Input / Output & Power Supply Board)**



**Schematic Diagram 2    MAR1 Power Amplifier Power Supply**  
**(MAR1 Input / Output & Power Supply Board)**



# **Schematic Diagram 3 MAR1 Power Amplifier ch1/2 Power AMP** **(MAR1 Power Amplifier Board)**



## Parts List   Schematic Diagram 1   MAR1 Power Amplifier Input / Output (MAR1 Input / Output & Power Supply Board)

Ref.	PHONIC Part #	Description
BD1, BD2	090-10000-000-0	SEMI, DIODE, BRIDGE, PB154
BD1, BD2 *2	322-05000-100-0	TUBE, 5mm*D1
C1, C2, C14, C15	042-22024-020-0	CAP, CERAMIC, TYPE2, 50V, 22pF, 5%
C17, C20	030-47556-0A0-0	CAP, ELEC, 85C, 50V, 4.7 $\mu$ F, 20%
C18, C22	030-22738-001-0	CAP, ELEC, 85C, 25V, 220 $\mu$ F, +80%, -20%
C19, C26	030-10626-0A0-0	CAP, ELEC, 85C, 16V, 10 $\mu$ F, 20%
C25	030-10564-0A0-0	CAP, ELEC, 85C, 63V, 1 $\mu$ F, 5%
C27	030-22538-0A0-0	CAP, ELEC, 85C, 25V, 2.2 $\mu$ F, +80%, -20%
C29, C30	042-22426-000-0	CAP, CERAMIC, TYPE2, 50V, 0.22 $\mu$ F, 20%
C3, C7, C8, C16	030-22628-0A0-0	CAP, ELEC, 85C, 16V, 22 $\mu$ F, +80%, -20%
C4, C5, C11, C12	042-10426-050-0	CAP, CERAMIC, TYPE2, 50V, 0.1 $\mu$ F, 20%
C6, C10	042-33024-001-0	CAP, CERAMIC, TYPE2, 50V, 33pF, 5%
C9, C13	030-22556-0A0-0	CAP, ELEC, 85C, 50V, 2.2 $\mu$ F, +80%, -20%
CN1A, CN1B	211-10021-180-0	CONN, 1/4", WAFER, SOCKET, 3-PIN,
CN1A, CN1B	212-10032-330-0	CONN, 1/4", WAFER, PLUG, 3-PIN,
CN2A, CN2B	211-10024-110-0	CONN, 1/4", WAFER, SOCKET, A3963WV2-2P
CN3A	212-10090-330-0	CONN, 1/4", WAFER, PLUG, 9-PIN, 170mm
CN3B	212-10090-340-0	CONN, 1/4", WAFER, PLUG, 9-PIN, 370mm
CN4A	211-10081-130-0	CONN, 1/4", WAFER, SOCKET, 8-PIN, 2532-08
CN4A-1-2	212-10080-420-0	CONN, 1/4", WAFER, PLUG, 8-PIN, 270mm
CN4B	211-10091-160-0	CONN, 1/4", WAFER, SOCKET, 9-PIN
CN4B-1-2	212-10090-320-0	CONN, 1/4", WAFER, PLUG, 9-PIN, 270mm
CN5	212-10023-060-0	CONN, 1/4", WAFER, PLUG, 2-PIN,
CN5	211-10021-160-0	CONN, 1/4", WAFER, SOCKET, 2-PIN
D1, D2	090-02000-020-0	SEMI, DIODE, DETECTOR, 1N4148
D3	090-01512-000-0	SEMI, DIODE, ZENER, 5.1V, 0.5W, $\pm$ 10%
D4, D5	090-00002-001-0	SEMI, DIODE, 1N4002
IC1, IC2	160-00000-900-0	IC, 4558DY, JRC
J1A, J1B	211-03300-170-0	CONN, 1/4", XLR-JACK, NCJ6FK-V, NEUTRIK
L1_R69, L2_R70	075-10082-100-0	INDUCTOR, 1uH, $\pm$ 10%, AXIAL(4.7 , 3W)
LED1A, LED1B	100-00010-030-1	LED, SE3011, RED
LED2A, LED2B	100-00040-030-0	LED, EL204YT, YELLOW
LED3A, LED3B	100-00050-110-0	LED, EL204GT, GREEN
LED4	100-00010-030-1	LED, SE3011, RED, 3mm
R1, R2, R4, R5, R18, R21, R22, R25	006-15020-440-0	RES, MF, 1/16W, 15K, $\pm$ 1%
R11, R27	000-10126-400-0	RES, CF, 1/4W, 100K, 5%
R20, R38, R47	000-22206-400-0	RES, CF, 1/16W, 2.2K, 5%
R26, R33, R34, R42	000-10326-400-0	RES, CF, 1/4W, 10K, 5%
R28	000-10226-400-0	RES, CF, 1/4W, 1K, 5%
R29, R44	000-47206-400-0	RES, CF, 1/16W, 4.7K, 5%
R3, R10, R13, R15	000-10206-400-0	RES, CF, 1/16W, 1K, 5%
R30, R57	000-18226-400-0	RES, CF, 1/4W, 1.8K, 5%



R32, R53	000-12326-400-0	RES, CF, 1/4W, 10K, 5%
R35	000-33306-400-0	RES, CF, 1/16W, 33K, 5%
R36, R40	000-47306-400-0	RES, CF, 1/16W, 47K, 5%
R54	000-18306-400-0	RES, CF, 1/16W, 18K, 5%
R56, R59	000-18226-400-0	RES, CF, 1/4W, 1.8K, 5%
R58	000-10106-400-0	RES, CF, 1/16W, 100, 5%
R6, R7	000-82326-400-0	RES, CF, 1/4W, 82K, 5%
R63	000-15426-400-0	RES, CF, 1/4W, 150K, 5%
R65	000-33326-400-0	RES, CF, 1/4W, 33K, 5%
R66	003-33003-601-0	RES, CEMENT, 5W, 0.330, 5%, U
R8, R12	000-43306-400-0	RES, CF, 1/16W, 43K, 5%
R9, R14, R31, R37, R46, R60, R62	000-10306-400-0	RES, CF, 1/16W, 10K, 5%
RL1	076-01212-012-0	RELAY, VB12MU-5
SW1	210-01202-050-0	SW, SLIDE, SSFZ22-07
TR1, TR3-6, TR8-10, TR13, R15, TR16	120-00000-800-0	SEMI, TRANSISTOR, NPN, 2SC1815, GR
TR17, TR19	120-00000-800-0	SEMI, TRANSISTOR, NPN, 2SC1815, GR
TR7, TR11, TR12	121-00000-200-0	SEMI, TRANSISTOR, PNP, 2SA1015, GR
VR1A, VR1B	022-20370-010-0	RES, SIGNAL, ROTARY, 13mm, 20KA

**Parts List   Schematic Diagram 2   MAR1 Power Amplifier Input / Output  
(MAR1 Input / Output & Power Supply Board)**

<b>Ref.</b>	<b>PHONIC Part #</b>	<b>Description</b>
BD3	090-10015-000-0	SEMI, DIODE, BRIDGE, KBL06
BD4	090-10013-000-0	SEMI, DIODE, BRIDGE, PUB605
C31	058-68325-100-0	CAP, LINE, 250V, 0.068 $\mu$ F, 20%, MEX-683K
C32-C37	030-33866-030-0	CAP, ELEC, 85C, 63V, 3300 $\mu$ F, +80%, -20%
C38	030-10838-000-0	CAP, ELEC, 85C, 25V, 1000 $\mu$ F, +80%, -20%
CH1, CH2	211-17000-410-0	BINKING POST BP-47-2P
CN2/4, CN4B	211-10044-040-0	CONN, 1/4", WAFER, SOCKET, 4-PIN
FUSE1-FUSE5	280-63267-000-0	FUSE, 6.3A (250V VERSION ONLY), VDE/CE, S
FUSE5	280-3E216-001-0	FUSE, 3.15A, 250V, SSA, BEL5ST3.15
POWER SWITCH/*2	322-21500-400-6	TUBE, 15mm*D4
PS1, PS3	211-24503-000-0	CONN, 1/4", SCREW, TERMINAL, 5-PIN
PS2	211-24903-000-0	CONN, 1/4", SCREW, TERMINAL, 9-PIN
R39	000-10326-400-0	RES, CF, 1/4W, 10K, 5%
R52	003-33003-600-0	RES, CEMENT, 5W, 330, 5%,
R52, R55 *2	322-05000-100-0	TUBE, 5mm*D1
R55	003-18003-600-0	RES, CEMENT, 5W, 180, 5%,
SW2	210-01202-050-0	SW, SLIDE, SSFZ22-07
SWITCH POWER	210-03201-004-0	SW, PUSH, POWER
T1	070-20338-800-0	POWER, TRANSFORMER, 115/230V

**Parts List   MAR1 Power Amplifier Input / Output  
(MAR1 Input / Output & Power Supply Board)**

<b>Ref.</b>	<b>PHONIC Part #</b>	<b>Description</b>
<b>POWER AMPLIFIER INPUT/OUTPUT BOARD MAR1</b>	F34-10000-002-0	MAR1, PCB-INPUT
	281-00000-020-0	FUSE, CLIP, FH-1206
	315-00016-000-0	GND, LUG, JG-6L
	290-34340-200-0	PCB, MAR1, INPUT, PANEL
	382-10005-010-0	TINNER, WIRE, 5mm, D0.6
	H34-10002-002-0	MAR1, PCB-INPUT, A/I
	F34-10000-003-0	MAR1, PCB-LED, M/I
	290-34340-300-0	PCB, MAR1, VR+LED, PANEL
	H34-10003-003-0	MAR1, PCB-LED

## Parts List Schematic Diagram 3 MAR1 Power Amplifier ch1/2 Power AMP (MAR1 Power Amplifier Board)

Ref.	PHONIC Part #	Description
C101 ,C126	042-47225-050-0	CAP, CERAMIC, TYPE2, 50V, 4700pF, 5%
C102, C109, C122, C128	042-47144-050-0	CAP, CERAMIC, TYPE2, 100V, 470pF, 5%
C103, C129	042-47124-050-0	CAP, CERAMIC, TYPE2, 50V, 470pF, 5%
C104	030-22736-0A0-0	CAP, ELEC, 85C, 25V, 220 $\mu$ F, 20%
C104	322-05000-100-0	TUBE, 5mm*D1
C104	322-05000-100-0	TUBE, 5mm*D1
C105, C125	042-10424-050-0	CAP, CERAMIC, TYPE2, 50V, 0.1 $\mu$ F, 5%
C106, C124	042-10444-050-0	CAP, CERAMIC, TYPE2, 100V, 0.1mF, 5%
C107, C123	030-47668-0A0-0	CAP, ELEC, 85C, 63V, 47 $\mu$ F, +80%, -20%
C108, C121	046-10214-060-0	CAP, MYLAR, 100V, 0.001 $\mu$ F, 5%
C110, C120	042-10144-050-0	CAP, CERAMIC, TYPE2, 100V, 100pF, 5%
C111	042-33024-050-0	CAP, CERAMIC, TYPE2, 50V, 33pF, 5%
C112, C118	046-10204-050-0	CAP, MYLAR, 50V, 0.001 $\mu$ F, 5%
C113, C114	046-47304-001-0	CAP, MYLAR, 50V, 0.047 $\mu$ F, 5%
C115, C116, C119	030-10658-0A0-0	CAP, ELEC, 85C, 50V, 10 $\mu$ F, +80%, -20%
C117	032-10636-000-0	CAP, ELEC, NP, 85C, 25V, 10 $\mu$ F, 20%
C127	030-22736-0A0-0	CAP, ELEC, 85C, 25V, 220 $\mu$ F, 20%
CN101, CN102, CN104	211-10024-110-0	CONN, 1/4", WAFER, SOCKET, 2-PIN, A3963WV-2P
CN103	211-10091-160-0	CONN, 1/4", WAFER, SOCKET, 9-PIN, 2532-09
D101, D102, D105, D106, D113, D115, D117, D118	090-00002-001-0	SEMI, DIODE, RECT, 1N4002
D103, D114	090-00017-000-0	SEMI, DIODE, RECT, LT6A04
D104, D116	090-01103-010-0	SEMI, DIODE, ZENER, 10V, 0.5W, $\pm$ 10%
D108, D107, D111, D112	090-02000-020-0	SEMI, DIODE, DETECTOR, 1N4148
D109, D110	090-01752-010-0	SEMI, DIODE, ZENER, 7.5V, 0.5W, $\pm$ 10%
IC101	160-00018-900-0	IC, MC34081
R101, R108, R145, R149	000-82226-400-0	RES, CF, 1/4W, 8.2K, 5%
R102, R122, R128, R150	000-10326-400-0	RES, CF, 1/4W, 10K, 5%
R103, R151	000-47326-400-0	RES, CF, 1/4W, 47K, 5%
R104, R152	000-33236-400-0	RES, CF, 1/2W, 3.3K, 5%
R105, R153	000-47126-400-0	RES, CF, 1/4W, 470, 5%
R106, R148	000-12326-400-0	RES, CF, 1/4W, 12K, 5%
R107, R154	000-33726-400-0	RES, CF, 1/4W, 3.3, 5%
R109, R147	000-47026-400-0	RES, CF, 1/4W, 47, 5%
R110, R146	000-68236-400-0	RES, CF, 1/2W, 6.8K, 5%
R111, R144	000-27326-400-0	RES, CF, 1/4W, 27K, 5%
R112, R114, R138, R143	000-10126-400-0	RES, CF, 1/4W, 100, 5%
R113, R117, R136, R140	000-22226-400-0	RES, CF, 1/4W, 2.2K, 5%
R115, R134	000-47736-400-0	RES, CF, 1/2W, 4.7, 5%
R116, R121, R123, R137, R130	000-10226-400-0	RES, CF, 1/4W, 1K, 5%
R118, R141	000-10136-400-0	RES, CF, 1/2W, 100, 5%
R119	000-10426-400-0	RES, CF, 1/4W, 100K, 5%
R124, R129	000-68326-400-0	RES, CF, 1/4W, 68K, 5%

R125,R126	000-39226-400-0	RES, CF, 1/4W, 3.9K, 5%
R127	006-49912-420-0	RES, MF, 1/4W, 4.99K, $\pm 1\%$
R131	000-82126-400-0	RES, CF, 1/4W, 820, 5%
R132	020-20151-000-0	RES, SEMI-FIX, ROTARY, 200, 0.1W, D10
R133	011-33000-010-0	RES, THERMAL, PTC
R142, R120	003-33093-602-0	RES, CEMENT, 5W, 0.33, 5%
TR101, TR103, TR110	120-00005-000-0	SEMI, TRANSISTOR, NPN, MJE340
TR102, TR106	120-00008-700-0	SEMI, TRANSISTOR, NPN, TIP35
TR102, TR106, TR108, TR113, TR115	590-53008-200-0	SCREW, MACHINE, SET, SCR, M3.0*8, BLK
TR102, TR106, TR108, TR113, TR115	610-60301-006-0	WASHER, SPR, D3*D5*1, NI
TR102, TR106, TR113, TR115	314-00000-050-0	BUSHES, 602S(V.0)
TR104, TR111, TR114	121-00006-100-0	SEMI, TRANSISTOR, PNP, MJE350
TR105	120-00001-200-0	SEMI, TRANSISTOR, NPN, BC550
TR107	120-00001-400-0	SEMI, TRANSISTOR, NPN, 2N5551
TR108	120-00008-800-0	SEMI, TRANSISTOR, NPN, MJE802
TR108	313-00000-060-0	WASHER, RUBBER, TO-2203
TR109	121-00000-300-0	SEMI, TRANSISTOR, PNP, 2N5401, GR
TR112	121-00000-800-0	SEMI, TRANSISTOR, PNP, BC560
TR113, TR115	121-00006-200-0	SEMI, TRANSISTOR, PNP, TUP36

**Parts List   MAR1 Power Amplifier ch1/2 Power AMP**  
**(MAR1 Power Amplifier Board)**

Ref.	PHONIC Part #	Description
POWER AMPLIFIER BOARD MAR1	F34-10000-001-0	MAR1, PCB-POWER
	526-20033-010-0	HEAT, SINK, MAR1
	290-34340-100-0	PCB, MAR1, POWER-PANEL
	382-20002-510-0	TINNER, WIRE, 2.5mm, D0.6
	382-20005-010-0	TINNER, WIRE, 5mm, D0.6
	382-20007-510-0	TINNER, WIRE, 7.5mm, D0.6
	H34-10001-001-0	MAR1, PCB-POWER

## Parts List    **MECHANISM    MAR1**

<b>Ref.</b>	<b>PHONIC Part #</b>	<b>Description</b>
	212-10010-580-0	CONN, 1/4", WAFER, PLUG, 1-PIN, 60mm
	212-10010-590-0	CONN, 1/4", WAFER, PLUG, 2-PIN, 230mm
	212-10023-070-0	CONN, 1/4", WAFER, PLUG, 2-PIN, 230mm
	212-10023-080-0	CONN, 1/4", WAFER, PLUG, 2-PIN, 320mm
	212-10041-100-0	CONN, 1/4", WAFER, PLUG, 4-PIN, 250/350
	321-00000-070-0	CABLE, TIE, HW-100mm
	370-08010-733-0	POWER, CORD, 125V, 10A, 2.5m, 3P
	379-01800-127-0	MULTY, WIRE, UL1007, #26, 80mm, RED
	379-02121-140-0	MULTY, WIRE, UL1007, #24, 120mm, YLW
	379-02131-151-0	MULTY, WIRE, UL1007, #24, 130mm, GRN
	379-05351-121-0	MULTI, WIRE, UL, 1617#18, 350mm
	379-10101-101-0	MULTY, WIRE, UL1015, #18, 100mm, BLK
	379-10101-121-0	MULTY, WIRE, UL1015, #18, 100mm, RED
	510-20660-000-0	PANEL, MAR1, PHONIC
	516-20390-000-0	TOP, COV, MAR1, PHONIC
	517-20460-000-0	BOTTOM, COVER, MAR1, PHONIC
	525-20003-000-0	FEET, D20*10.4
	527-11000-000-0	STRAN, RELIEF, BUSHING, 6W3-4, R
	540-20090-000-0	KNOB, ROTARY, PA1100
	560-60001-100-0	CARTON, MAR1, 548*428*355
	561-60001-100-0	GIFT, BOX, 535*415*155, MAR1
	565-60014-000-0	POLYLON, 150*410*87
	568-00003-000-0	BAG, PLASTICS, 240*340*0.05, #10
PCB*15	568-30005-000-0	BAG, PLASTICS, 640*530*0.05
CUBOSS*2, XLR/J*4	572-00000-100-0	DRYER, 10g
IC+HEAT SINK*10	573-10060-010-0	LABEL-NO., SERIAL, MAR1
BOTTOM+HEAT SINK*4	573-60012-010-0	LABEL-NO., SERIAL, MAR1
FEET*4	573-60013-000-0	LABEL-NO., SERIAL, MAR1, CE
HEAT SINK+TOP.COV+BOT.COV*12 FEET*4	573-60018-000-0	LABEL, FUSE, 12*2.5
TOUTCH GROUND	574-6A006-010-0	OWNER'S, MANUAL, MAR1
TOUTCH GROUND, IC*10	590-04010-200-0	SCREW, MACHINE, FLT, SCR, M4.0*10, BLACK
	590-43006-100-0	SCREW, MACHINE, PAN, M3.0*6, ZN
	590-53006-200-0	SCREW, MACHINE, SET, SCR, M3.0*6, BLACK
	590-53008-200-0	SCREW, MACHINE, SET, SCR, M3.0*8, BLACK
	590-54008-200-0	SCREW, MACHINE, SET, SCR, M4.0*18, BLACK
	591-23010-000-0	SCREW, TAPPING, BID, SCR, D3.0*10
	610-00301-001-0	WASHER, PLA, D3*D8*1, NI
	610-00320-321-0	WASHER, PLA, D3*D8*0.3, NI
	610-60300-501-0	WASHER, PAN, SPR, D3.0*D7.0*0.5, NI
	615-20002-630-0	COPPER, RIVET, 27+5
F-F	615-20037-630-0	COPPER, RIVET, 25+6, M3
E-E	618-14180-662-0	PIN, SPEC, FIXED, SR-2, WHITE
A-A	631-20019-000-0	HEMECON, D30*D5.5*0.5mm

B-B

631-60003-000-0

HEMECON, 10\*360mm

C-C

B34-34010-230-1

MAR1, PHONIC, AC, 120V, UL/CAS

## **Parts List   Power Requirement Classification AC240V   SAA**

FUSE5	280-3E216-001-0	FUSE, 3.15A, 250V, SSA, BEL5ST3.15
FUSE1-4	280-63267-000-0	FUSE, TSD6.3A, 250V, VDE/UL/CSES
	370-12040-839-0	POWER, CORD, 10A, 250V, 2.5m, 3P, SAA
	527-11000-000-0	STRAN, RELIEF, BUSHING, 6W3-4, R
	619-06380-320-0	PLA, RIVET, ST-3L

## **Parts List   Power Requirement Classification AC240V SA**

FUSE1-4	280-3E216-001-0	FUSE, 3.15A, 250V, SSA, BEL5ST3.15
FUSE1-4	280-63267-000-0	FUSE, TSD6.3A, 250V, VDE/UL/CSES
	370-12020-829-0	POWER, CORD, 240V, 3A/250V, 3P6F, SA
	527-11000-000-0	STRAN, RELIEF, BUSHING, 6W3-4, R
	619-06380-320-0	PLA, RIVET, ST-3L

## **Parts List   Power Requirement Classification AC240V BS**

FUSE1-4	280-3E216-001-0	FUSE, 3.15A, 250V, SSA, BEL5ST3.15
FUSE1-4	280-63267-000-0	FUSE, TSD6.3A, 250V, VDE/UL/CSES
	370-26B40-429-1	POWER, CORD, 230V, 13A, 2.5m, BS, 3P
	527-11000-000-0	STRAN, RELIEF, BUSHING, 6W3-4, R
	619-06380-320-0	PLA, RIVET, ST-3L

## **Parts List   Power Requirement Classification AC240V IEC**

FUSE1-4	280-3E216-001-0	FUSE, 3.15A, 250V, SSA, BEL5ST3.15
FUSE1-4	280-63267-000-0	FUSE, TSD6.3A, 250V, VDE/UL/CSES
	370-23060-939-0	POWER, CORD, 10/16A, 250V, 2.5m2P, CE
	527-11000-000-0	STRAN, RELIEF, BUSHING, 6W3-4, R
	543-10110-120-0	KNOB, ROTARY, BUSHING, D6.0, GRY
	619-06380-320-0	PLA, RIVET, ST-3L