

# Owner's Manual

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Model

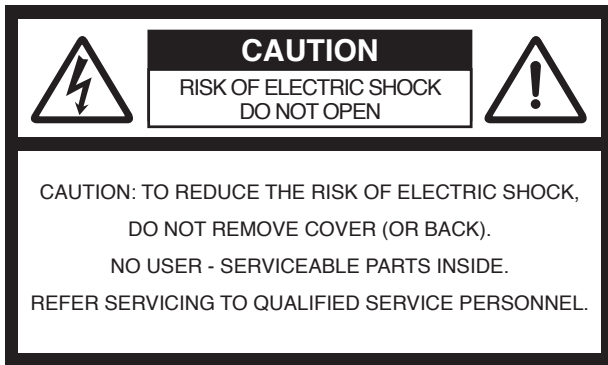
**AP1020/AP2090/AP2130**

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STEREO POWER AMPLIFIER

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**Fostex**<sup>®</sup>



## "WARNING"

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

## SAFETY INSTRUCTIONS

1. Read Instructions - All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions - The safety and operating instructions should be retained for future reference.
3. Heed Warnings - All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions - All operating and use instructions should be followed.
5. Water and Moisture - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands - The appliance should be used only with a cart or stand that is recommended by the manufacturer.



An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, place in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization - The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.
12. Power Cord Protection - Power supply cords should be routed so that they are not likely to be walked on

**CAUTION:**  
TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

**ATTENTION:**  
POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU' AU FOND.



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 to persons.



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

- or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. Cleaning - The appliance should be cleaned only as recommended by the manufacturer.
14. Nonuse Periods - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
15. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
16. Damage Requiring Service - The appliance should be serviced by qualified service personnel when:
  - A. The power supply cord or the plug has been damaged; or
  - B. Objects have fallen, or liquid has been spilled into the appliance; or
  - C. The appliance has been exposed to rain; or
  - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
  - E. The appliance has been dropped, or the enclosure damaged.
17. Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.
18. The appliance should be situated away from drops of water or spray of water.
19. Objects containing liquid such as vase must not be put on the appliance.  
The appliance is not completely isolated from the power supply even if the power switch is at off position.
20. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.
21. Only use attachments/accessories specified by the manufacturer.
22. An appliance with a protective earth terminal should be connected to mains outlet with a protective earth connection.
23. An appliance should be placed in a position where an AC plug / inlet can be easily pulled out by hand.
24. Main plug is used as the disconnection device. It shall remain readily operable and should not be obstructed during intended use. To be completely disconnected the apparatus from supply mains, the main plug of the apparatus shall be disconnected from the mains socket outlet completely.

## INTRODUCTION

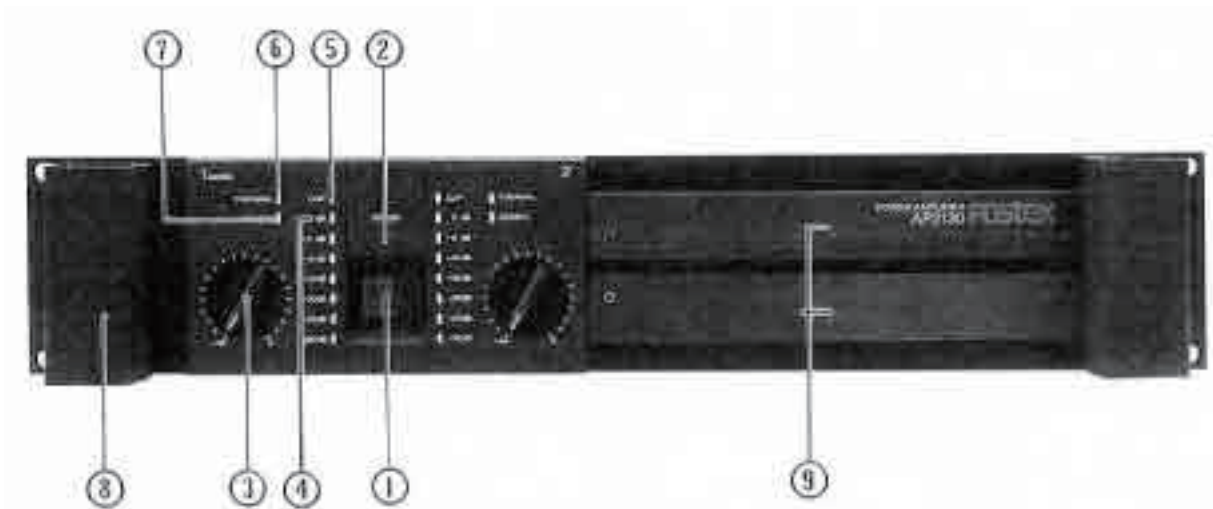
Fostex new AP Series amplifiers AP1020, AP1020, AP2090 and AP2130 are designed to withstand severe operating conditions.

It is a commercial use amplifier containing high technology circuits designed for stability, durability, small size and large output.

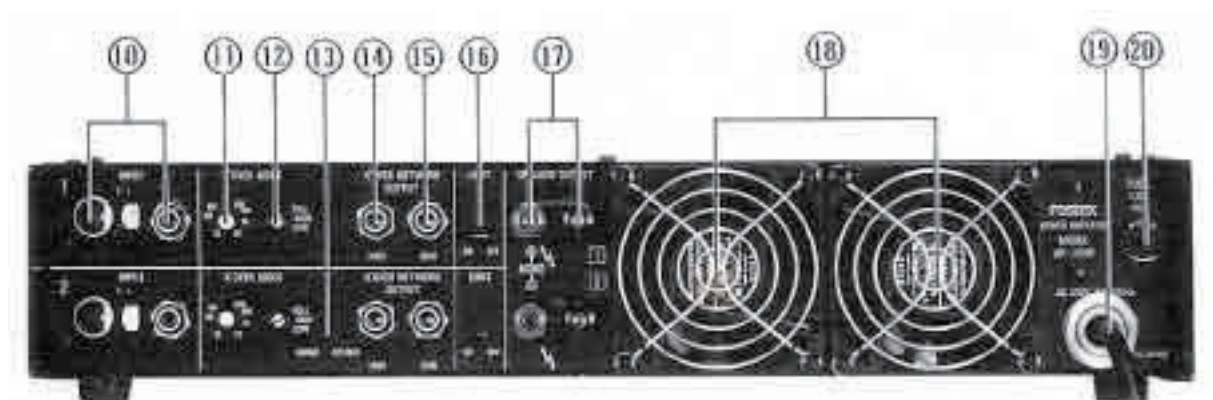
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FRONT PANEL



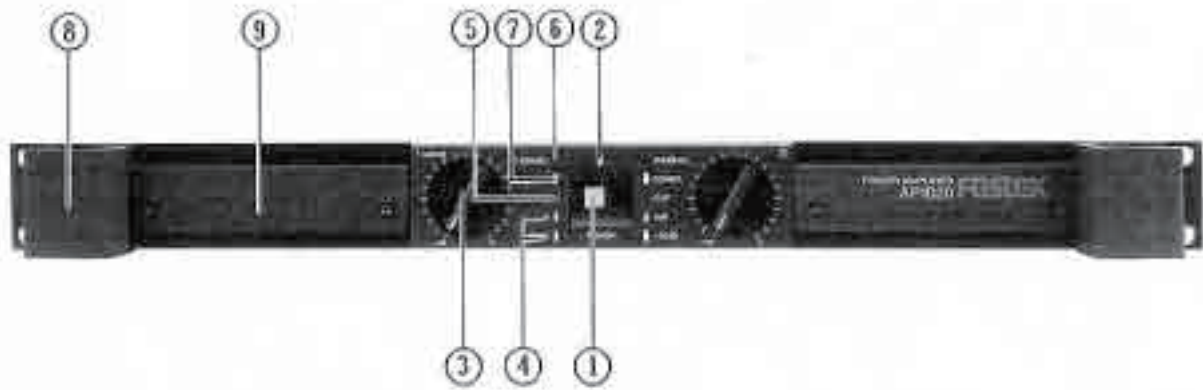
REAR PANEL



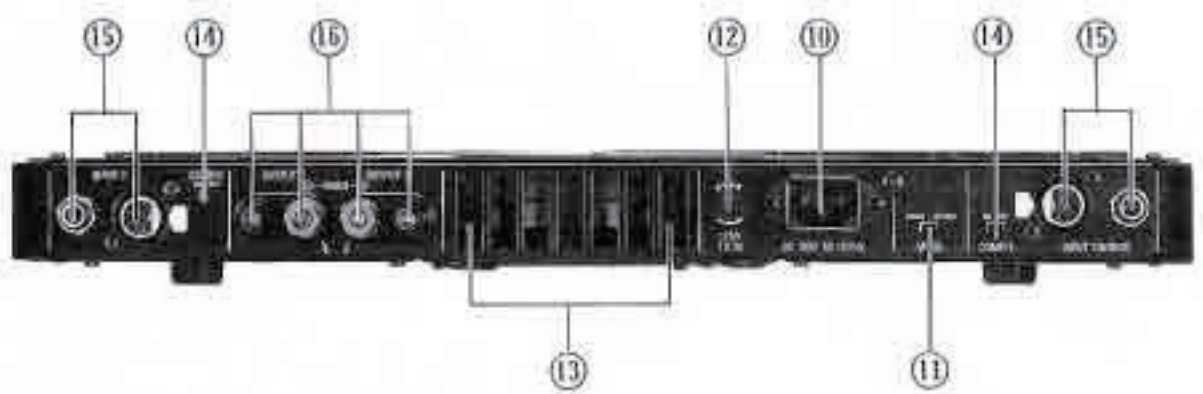
- |                                   |                                     |
|-----------------------------------|-------------------------------------|
| 1. Power switch                   | 10. Input connector                 |
| 2. Power indicator                | 11. Crossover mode (VR)             |
| 3. Output level controller        | 12. Crossover mode (Selector)       |
| 4. Output level indicator         | 13. MONO/STEREO selector SW         |
| 5. Clip indicator                 | 14. Crossover network output (HIGH) |
| 6. Thermal indicator              | 15. Crossover network output (LOW)  |
| 7. Compressor / limiter indicator | 16. COMP/L switch                   |
| 8. Handle                         | 17. Speaker output                  |
| 9. Filter cover                   | 18. Cooling fan                     |
|                                   | 19. Power cord                      |
|                                   | 20. Power supply fuse               |

AP1020

FRONT PANEL



REAR PANEL



- |                                   |                                 |
|-----------------------------------|---------------------------------|
| 1. Power switch                   | 10. AC (Input)                  |
| 2. Power indicator                | 11. MONO/STEREO switch          |
| 3. Output level controller        | 12. Fuse                        |
| 4. Output level indicator         | 13. Cooling fan                 |
| 5. Clip indicator                 | 14. Compressor / limiter switch |
| 6. Thermal indicator              | 15. Input connector             |
| 7. Compressor / limiter indicator | 16. Output connector CH-1       |
| 8. Handle                         | 17. " " CH-2                    |
| 9. Filter cover                   |                                 |

## OUTSTANDING FEATURES

- 1) **Forced cooling**  
When the amplifier internal temperature rises, the cooling fan automatically changes to high speed to force cool the heat sink for protecting the amplifier.
- 2) **Level indicator (AP2090, AP2130)**  
This LED is lit in 5dB steps over the 0 ~ - 30dB range to check the input signal.
- 3) **Clip indicator**  
This LED is lit at overload. It will flash on large instantaneous inputs but will not pose any problems.
- 4) **Thermal indicator**  
When this LED is lit, it indicates that the amplifier internal temperature is unusually high, and the power supply voltage is reduced automatically to control the amplifier output.  
Consequently, you may notice some distortion when this LED is lit as the amplifier output has been reduced.
- 5) **Crossover network circuit (AP2090, AP2130)**  
These contain a 2 way crossover network continuously variable over 30Hz ~ 2,000Hz at an 18dB/octave slope.
- 6) **Crossover network OUTPUT connector (HIGH, LOW; AP2090 and AP2130 only)**  
This output connector allows multi system use with a 2 way or 3 way speaker system (Refer to Multi System Examples, page 6) and HIGH PASS/LOW PASS outputs can be obtained from each output connector.
- 7) **Compressor/limiter circuit**  
Individual compressor / limiter circuits for each channel are contained which can be made to function by the rear panel ON / OFF selector switch. The limiter can be switched ON / OFF by the rear panel COMP / L switch. The compressor operates at a compression ratio of 2, from about 1/2 of rated output up to clipping output, after which the hard limiter functions to suppress distortion. Consequently, when the limiter is switched on, the output will not largely distort even at excess input.

## CROSSOVER NETWORK, SELECTOR SWITCH

### 1) FULL

At this position, the crossover network is bypassed, (Hz) control pot becomes ineffective, a flat response output against the input signal is obtained at the output connector. The crossover network outputs (HIGH, LOW) at each connector will be those set by the crossover frequency adjusting knobs.

### 2) HIGH

When this position is selected, the HIGH PASS signal whose cutoff frequency is set by the (Hz) knob, is obtained at the speaker output connector.

### 3) LOW

When set to this position, the LOW PASS signal whose cutoff frequency is set by the (Hz) knob, is obtained at the speaker output connector.

## INPUT CONNECTION

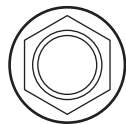
Two types of connectors, XLR3-31 equivalent and 1/4" 3P phone jack, both of balanced line are wired in parallel.

Polarity of the pins are as follows:

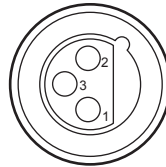
(#1 pin) . . . Ground, (#2 pin) . . . Hot, (#3 pin) . . . Cold

For the stereo mode, the rear panel MODE selector switch is set to STEREO and the left input is connected to INPUT (1) and the right input to INPUT (2).

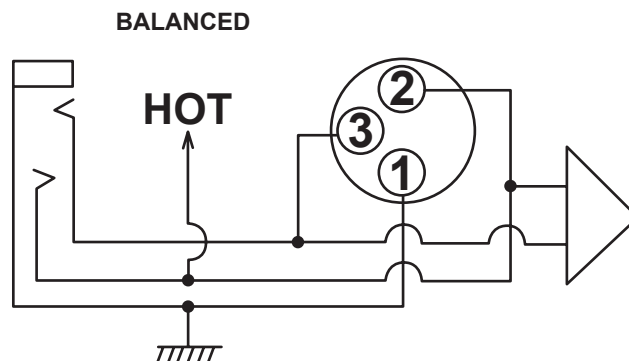
For the mono mode, the selector switch is set to MONO and the input signal is applied between ground and INPUT (1).



PHONE

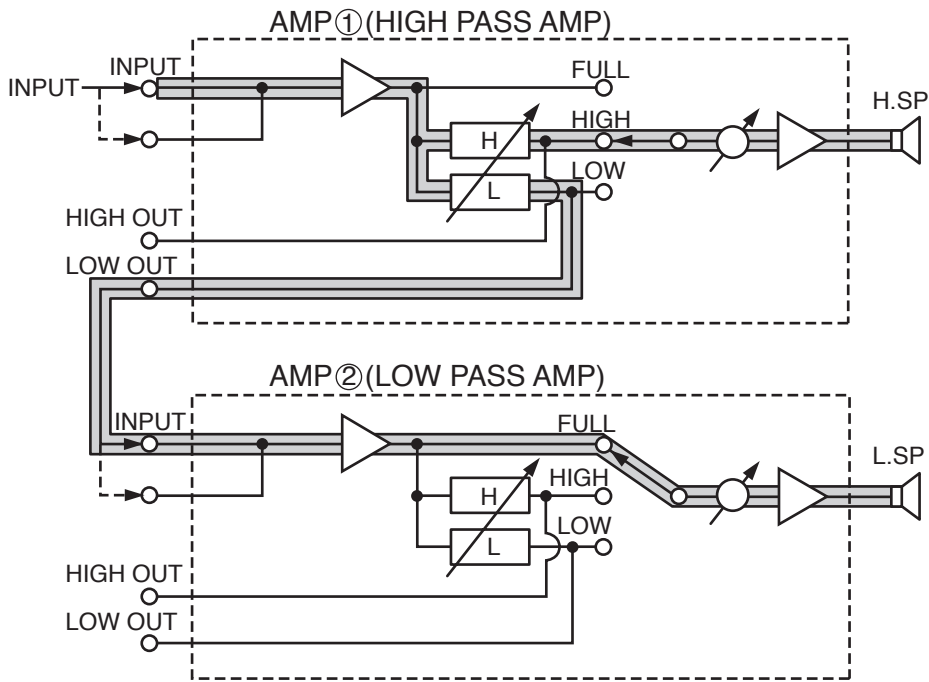


CANNON

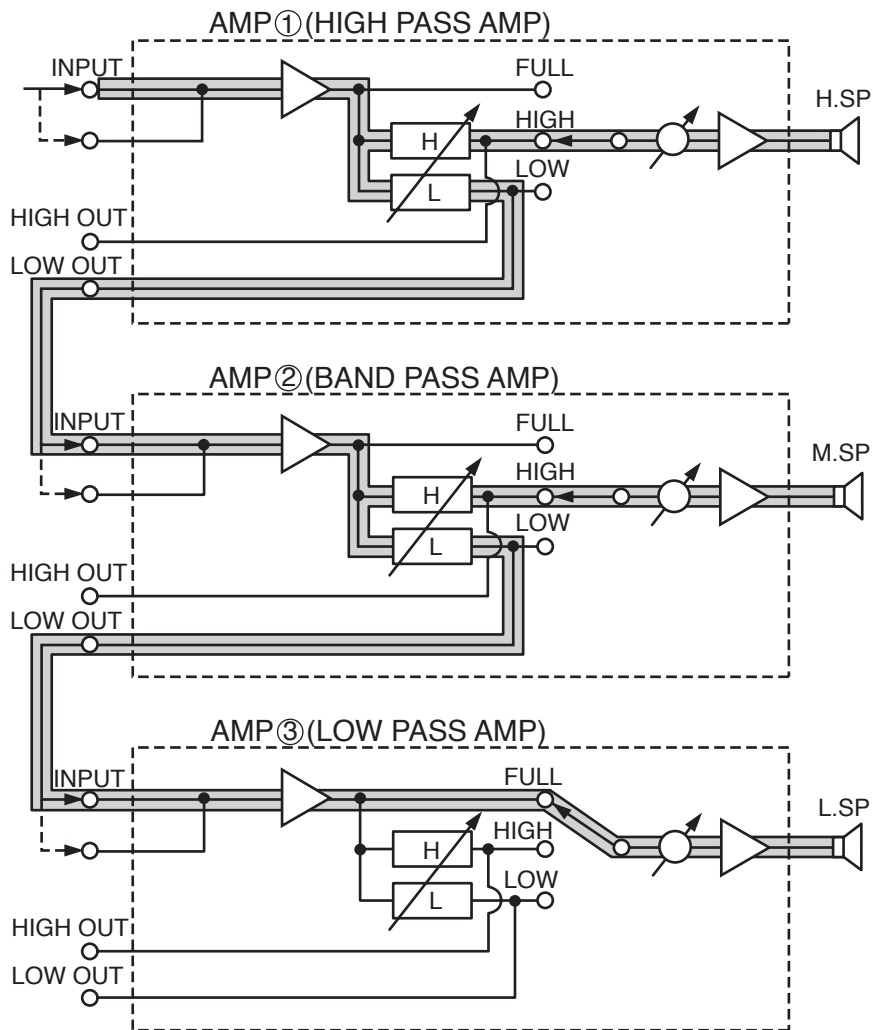


# MULTI-AMPLIFIER SYSTEM EXAMPLE USING AP2090/2130

[Example of 2 way system]



[Example of 3 way system]





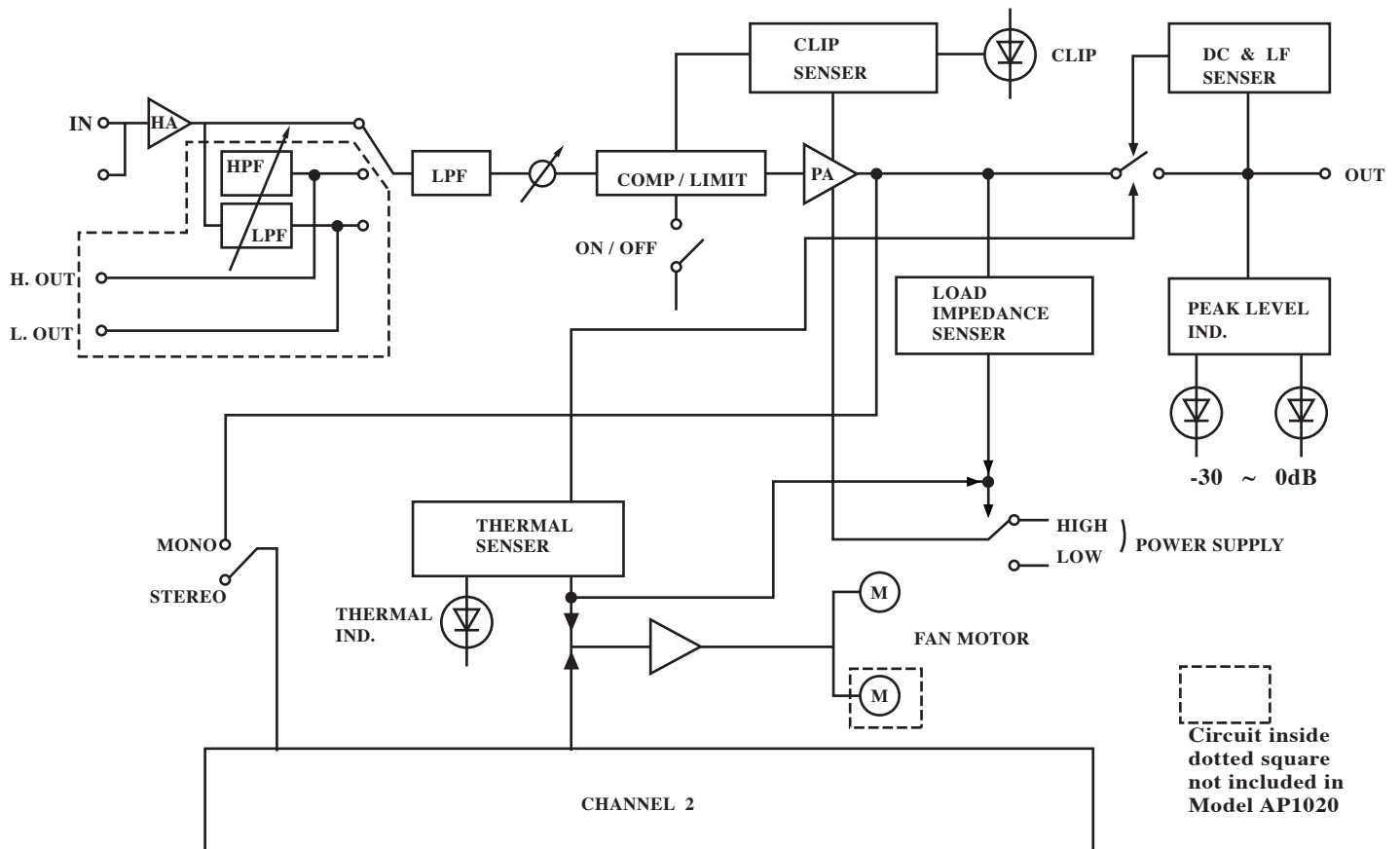
\* General use amplifiers not containing a crossover network can also be used for the low region or high region amplifier.

When Ap20909/2130 are to be used as a full range amplifier, harmful sub-sonic frequencies can be cut off if the crossover network selector switch is set to HIGH and crossover frequency to 30Hz.

If a line transformer is to be connected, always set to HIGH PASS (crossover network selector switch to HIGH) and crossover frequency to 100Hz.

The speaker low region cutoff frequency will slightly change depending on the line transformer used.

### Block diagram



SPECIFICATIONS

	AP1020	AP2090	AP2130	
<b>[AMPLIFIER SECTION]</b>				
Rated output	75W+75W. . . 8Ω	300W+300W. . . 8Ω	450W+450W. . . 8Ω	
	100W+100W. . . 8Ω	450W+450W. . . 4Ω	650W+650W. . . 4Ω	
	200W(mono). . . 8Ω	900W(mono). . . 8Ω	1300W(mono). . . 8Ω	
Total harmonic distortion (At 1kHz rated output)	Less than 0.05%	Less than 0.05%	Less than 0.05%	
Reproduce frequency range	10 ~ 35,000Hz (At rated output, +0dB, -1dB)	10 ~ 35,000Hz (At rated output, +0dB, -1dB)	10 ~ 35,000Hz (At rated output, +0dB, -1dB)	
S/N ratio	92dB (IHF-A, 100dB)	100dB (IHF-A, 105dB)	100dB (IHF-A, 105dB)	
Input impedance	10kΩ	10kΩ	10kΩ	
Damping factor	Higher than 300 (8Ω) ( 1kHz )	Higher than 350 (8Ω) ( 1kHz )	Higher than 400 (8Ω) ( 1kHz )	
Input sensitivity (At rated output)	0.70V (±1dB, 8Ω)	1.40V (±1dB, 8Ω)	1.72V (±1dB, 8Ω)	
<b>[ Crossover Network Section ]</b>				
Crossover frequency		30 ~ 2,000Hz (18dB/oct.)	30 ~ 2,000Hz (18dB/oct.)	
Dimensions (mm) (in mm) (W) x (H) x (D)				
	482x43.5x422	482x88x435	482x88x435	
Weight	8.1kg	22.6kg	23.0kg	
Power supply	120V/AC	120V/AC	120V/AC	
	220V/AC	220V/AC	220V/AC	
	240V/AC	240V/AC	240V/AC	
Power consumption	AC 100V	215W	630W	745W
	AC 120V	210W	955W	1150W
	AC 220/240V	550VA	2KVA	2.28kVA

Specifications in this manual subject to change for improvement without notice.

Above specifications as of September 30, 1989.

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