Owner’s & Installation manual

ADP6000

6 CHANNEL AMPLIFIER
Thank you for purchasing this Clarion product.

- Please read the owner’s manual in its entirety before operating the equipment.
- After reading this manual, keep it handy, such as in your glove compartment.
- Save your sales receipt. The warranty at the end of this manual and your sales receipt are essential for warranty service.

**CLARION PRODUCT REGISTRATION INFORMATION**

Dear Customer:

Congratulations on your purchase of a Clarion mobile electronic products. We are confident that you’ll enjoy your Clarion experience.

There are many benefits to registering your product. We invite you to visit our website at [www.clarion.com](http://www.clarion.com) to register your Clarion product.

We have made product registration simple with our easy to use website. The registration form is short and easy to complete. Once you’re registered, we can keep you informed of important product information.

Register at [www.clarion.com](http://www.clarion.com) - it’s easy to keep your Clarion product up to date.

**Package Contents**

1. Amplifier unit
2. Bag for accessories
3. Owner’s & Installation manual

**Contents in the accessory bag**

- A  Fixing screws (M4 x 8) ........................................ 4
- B  Fuse ................................................................. 1
1. FEATURES

- Full frequency response with low distortion and exceptional signal-to-noise ratio performance.
- Advanced circuitry design provides bridgeable outputs for use in a variety of applications.
- Protection circuits for overheating and speaker shorts.
- Aluminum heat sink for efficient heat dissipation.
2. GENERAL PRECAUTIONS

- This symbol indicates that you have to pay attention to these instructions. Disregarding them might cause accidental harms or damage your amplifier.
- Before installing the amplifier, make sure you carefully read and understand all instructions.
- The vehicle electric system must have 12 VDC voltage with negative to ground. Make sure your car has it in order to avoid any damages to your amplifier and to the vehicle.
- Pre-plan the configuration of your new amplifier and the best wiring routes to ease installation.
- Always wear protective eyewear when using tools that may generate splinters.
- During installation, keep the amplifier in its packing as long as possible; this will protect it from damages.
- Secure all auxiliary devices you built to install the components to the vehicle structure through brackets, screws, nuts and bolts; this insures stability and safety while driving.
- The amplifier detachment while driving can damage the people in the vehicle and other cars. Secure the amplifier at best, paying utmost attention if installation is inside the passenger’s compartment. Use extra fixing systems if installation occurs inside the engine compartment.
- Before installing the amplifier, turn off the source and all other electronic devices in the audio system for preventing any damages.
- Make sure the location you chose for the components does not affect the correct functioning of the vehicle mechanic and electric devices.
- Do not run the cables or install the amplifier next to electronic gearcases.
- Use extreme caution when cutting or drilling the car plate, checking there are no electrical wiring or structural element underneath.
- Before connecting the power cable to the amplifier, disconnect the negative lead (−) from the car battery.
- Make sure power cable is not short circuited during installation and connection.
- Power cable must have mechanically resistant and self-extinguishing insulation.
- Its section has to comply with what is suggested in this manual. Avoid to run it over or through sharp edges or close to moving mechanical devices. Make sure it is well fixed all along its length. Block positive and negative cables just close to the amplifier respective power supply terminal blocks through a clamping screw.
- Use rubber grommets to protect the wire if it runs in a hole of the plate or proper materials if it is close to heat-generating parts.
- To ground the device (−) in the right way, use a screw in the vehicle chassis; scrape all paint or grease from the metal if necessary, checking with a tester that there is continuity between the battery negative terminal (−) and the fixing point. If possible, connect all components to the same ground point; this solution rejects most noise.
- Route all signal cables close together and away from power cables.
- Never run cables outside the vehicle; you would not be protected against wear and in case of accidents.
- When installing speakers and the cables that connect them, make sure that non-insulated parts never touch the vehicle cutting parts. If they do, the amplifier protection is activated.
- To prevent all problems, use very good quality cables, connectors and accessories.
- When installation is over, and before plugging the main power supply fuse, check the system wiring and make sure all connections were done in the right way.
GENERAL PRECAUTIONS

- Power amplifiers put an increased load on the battery and on its charging system. We recommend checking your alternator and battery condition to ensure they can handle the increased consumption. Standard electrical systems which are in good condition should be able to stand this extra load without problems but we recommend the use of an energy storage capacitor and/or a battery for high level audio systems.

- Put a fuse and its insulated fuse holder 40 cm max. far from the battery positive terminal; connect one end of the power cable to it after connecting the other end to the amplifier. The fuse value must be 50% higher than the amplifier built-in one. In case the cable supplies several amplifiers, the fuse value will have to be 50% higher than the sum of the values of all other fuses in the amplifiers.

- There must be good air circulation where the amplifier is installed; this area must not be affected by humidity, rain, external deposits or parts coming from the vehicle mechanical devices. Do not cover ducts for forced cooling.

- Install the amplifier in the vehicle parts where temperature is between 0°C (32°F) and 55°C (131°F). WARNING. When working in demanding conditions, the amplifier can reach temperatures of around 80-90°C (176-194°F). Make sure it is not dangerously hot before touching it.

- Periodically clean the amplifier without using aggressive solvents that might damage it. Dampen a piece of cloth with water and soap, wring it and clean the amplifier. Then use a piece of cloth dampened with water only; eventually clean the amplifier with a dry piece of cloth.

- Remove dust and solid deposits from the ducts where air goes in and out. Do not use compressed air on the grilles without removing them, since it would push solid parts in the amplifiers. If necessary, please contact a specialised service centre for internal cleaning.
3. OPERATIONS

Covers

How to remove/reassemble the covers

1. Remove the screws indicated in the drawings. When you reassemble be sure you don’t force them.

2. Remove the cover by pulling it up.

3. Remove the screws indicated in the drawings and remove the cover by pulling it up.

4. Use the screwdriver to make the sound tuning or adjustment.

Flat-headed Screwdriver

Allen key-headed Screwdriver

Flat-headed Screwdriver
Amplifier fixing
For hidden installation the mounting holes for the screws are inside the amplifier outline. Secure the screws with the extended length screwdriver.

1. **Allen key-headed Screwdriver**

2. **M4 x 20 self-tapping Cross-headed Fixing screw**

3. **M4 x 6 Machine screw Allen key headed**
5. FUNCTIONS

Power Supply/Outputs/Other Functions Panel

1. Speaker in AUTO TURN ON (ON - OFF)
   Select ON to activate the function. Allows to turning on the amplifier through the speaker power cable, if source does not have a 12 VDC Remote output.

2. REMOTE SUB VOLUME CONTROL (ON - OFF)
   Activate ON or deactivate OFF external remote sub volume control adjuster. These function is available with FILTER selector positioned to LOPASS (page 9 - 5) and SLOPE selector positioned to 24dB L+R (page 9 - 6).

3. VCA
   Input for REMOTE SUB VOLUME CONTROL. Connect the adjuster here.

4. REMOTE IN/OUT
   Remote IN, terminal for the remote cable coming from the device which turns on the amplifier. Voltage must be between 7 and 15 VDC.
   Remote OUT, terminal for repeating remote voltage and turning on other electronic devices. Output voltage is 12 VDC at 50 mA.

5. A/B/C SPEAKERS IN
   High level signals left and right inputs. If head unit do not have preamplified output, connect its speaker wires here to drive left and right channel.

6. A/C PRE IN
   Left and right preamplified inputs for driving left and right channels.

7. B PRE IN/PRE OUT
   Left and Right preamplified input for driving left and right channels:
   Preamplified full range output:
   These function is available with B INPUT selector positioned to ON (page 9 - 9).

8. A/B/C LEFT Speaker OUT
   Left speaker and power terminal.
   For MONO connection, use C MONO terminal.

9. POWER (GROUND)
   Terminal block for the amplifier’s power supply: negative pole. Insert the battery negative cable or wire connected to the vehicle chassis here.
   The hole accepts cables up to 2 AWG.

10. POWER (11 - 15 VDC)
    Terminal block for the amplifier’s power supply: position pole.

11. PROTECTION FUSE
    3 X 30A.

12. A/B/C RIGHT Speaker OUT
    Right speaker and power terminal.
    For MONO connection, use C MONO terminal.
Control Panel

A CHANNELS 1 - 5

1 Levels (0.3 - 5V)
Input gain adjustment control.
Set to Min position. Use a CD as source, increase head unit volume until output distorts, then reduce volume 1 step in order to eliminate distortion. Increase LEVELS until the sound becomes distorted and then reduce LEVELS a little for optimum sound.

2 HI PASS (50 - 500 Hz)
Adjustment of the HIPASS crossover point.
Rotating the knob you can select any frequencies between 50Hz and 500Hz if multiplier 4 is on x1 position or you can select the crossover frequencies between 500Hz an 5kHz if multiplier 4 is on x10 position.

3 OUT MODE (3/4Ch - 5/6Ch)
Selector for amplifier operating mode:
5/6 Ch: A Ch stereo, B Ch stereo, C Ch stereo or mono, if SLOPE selector (page 9 - 13) is positioned to 24dB (L+R).
3/4 Ch: A Ch mono which provides BL signal, B Ch mono which provides BR signal, C Ch stereo or mono, if SLOPE selector (page 9 - 13) is positioned to 24dB (L+R). Use A PREIN or A SPEAKERS IN input and set B INPUT selector to PREOUT, in order to have a preamplified full range output for next amplifier if needed (or use B PREIN or B SPEAKERS IN input and set B INPUT selector to ON).
Commands of A channels section (page 9 - 1, 2, 4, 5) are not operative.
Control Panel

4 Range (x1 - x10)
Multiplier for HIPASS filter. Selecting x1 you have normal xover frequencies (50Hz - 500Hz).
Selecting x10 the frequencies will be multiply by 10 (500Hz - 5kHz).

5 Filter (FULL - HI)
Select FULL to drive full range power outputs. The full frequencies bandwidth will be output to power output connectors.
Select HI to drive a MIDRANGE/TWEETER.
In HI mode, the frequencies below crossover point will be attenuated at 12dB/octave slope.

6 Levels (0.3 - 5V)
Input gain adjustment control.
Set to Min position. Use a CD as source, increase head unit volume until output distorts, then reduce volume 1 step in order to eliminate distortion. Increase LEVELS until the sound becomes distorted and then reduce LEVELS a little for optimum sound.

7 HI PASS (50 Hz - 1 kHz)
Adjustment of the HIPASS crossover point.
Rotating the knob you can select any frequencies between 50Hz and 1kHz.

8 LO PASS (250 Hz - 1 kHz)
Adjustment of the LOPASS crossover point.
Rotating the knob you can select any frequencies between 250Hz and 5kHz.

B CHANNLES 6 - 10

9 B Input (PREOUT - ON)
Select PRE OUT in order to activate a preamplified full range output (page 8 - 7).
Inputs A PRE IN or A SPEAKERS IN drives A CHANNELS and B CHANNELS.
Select ON to drive B CHANNELS by B PRE IN or B SPEAKERS IN inputs.

10 Filter (FULL - BAND - HI)
Select FULL to drive full range power outputs. The full frequencies bandwidth will be output to power output connectors.
Select BAND to drive a MIDRANGE. Use HI PASS and LO PASS to adjust BAND PASS action
Select HI to drive a MIDRANGE or a TWEETER. Adjuster LO PASS is not operative.
In HI or BAND mode, the frequencies below and above crossover point will be attenuated at 12dB/octave.

C CHANNLES 11 - 16

11 Levels (0.3 - 5V)
Input gain adjustment control.
Set to Min position. Use a CD as source, increase head unit volume until output distorts, then reduce volume 1 step in order to eliminate distortion. Increase LEVELS until the sound becomes distorted and then reduce LEVELS a little for optimum sound.

12 LO PASS (50 Hz - 1 kHz)
Adjustment of the LOPASS crossover point.
Rotating the knob you can select any frequencies between 50Hz and 1kHz.

13 C Input (MIX(A+B) - ON)
Select MIX(A+B) in order to drive C CHANNELS by a sum of A and B INPUT signals.
If B INPUT selector is positioned to PRE OUT, C CHANNELS is driven by A INPUT signals only.
Inputs A PRE IN or A SPEAKERS IN drives A CHANNELS and B CHANNELS.
Select ON to drive C CHANNELS by C PRE IN or C SPEAKERS IN inputs.

14 Filter (FULL - LO)
Select LO or FULL filter function. If full is selected, the full frequencies bandwidth will be output to power output connection at C CHANNELS output.
Control Panel

15 Slope (12dB/24dB (L+R))
Select 12dB to have a low-pass STEREO filter. The frequencies above the crossover point will be attenuated at 12dB/octave.
Select 24dB (L+R) to have a low-pass (L+R) filter. The frequencies above the crossover point will be attenuated at 24dB/octave. These function activate REMOTE VOLUME CONTROL (connect external adjuster and activate it by Remote Sub Volume selector).

16 Subsonic (OFF / 20Hz / 30Hz)
Select OFF to exclude this filter action.
Select 20 or 30 in order to set the minimum start frequency for subwoofer.
This filter removes extremely low frequencies from subwoofer signal, below indicated value.
It acts only when FILTER selector is on LO position and SLOPE selector is on 24dB position.

LEDs 17 ~ 20

17 Power ON
Status indicator. Lit when you turn on the amplifier. If all LED 17, 18, 19, 20 turn on at the same time, amplifier shut down and you have to contact assistance.

18 Thermal
Status indicator. Lit when thermal protection is active, above 65°C. The amplifier remains off until temperature of the chassis goes below 75°C.

19 Overload
Status indicator. Lit when an overload occurs to the power output terminals. The amplifier goes into mute state for 3 seconds and LED start flashing until you turn off the amplifier. REMOVE THE CAUSE OF OVERLOAD.

20 Chassis
Status indicator. Light when a speaker touch a car body. The amplifier goes into mute state for 3 seconds and LED start flashing until you turn off the amplifier. REMOVE THE CONTACT BETWEEN SPEAKER WIRE AND CAR BODY.
6. EXAMPLE

System Diagram

Stereo mode - Full range system (Tweeter, Midrange and Woofer) with preamplified inputs or Hi-level inputs (dash line). Do not use PRE IN and SPEAKERS IN at the same time in any system.
System Diagram

2 Stereo mode- 4 Channels.

3 4 Channels Stereo mode and 1 Mono Mode (Bridge) for Source unit without SubWoofer output.

Adjust for optimum sound
Adjust crossover frequencies of Lo-Pass filter
4 Channels Stereo mode and 1 Mono Mode (Bridge) for Source unit with SubWoofer output.

Adjust for optimum sound

Adjust crossover frequencies of Lo-Pass filter

N.A.

Adjust crossover point of Hi-Pass filter

Adjust frequencies multiplier of crossover point

5 4 Channels Stereo mode and 1 Mono Mode (Bridge) for Source unit with only 1 PRE OUT.
### 8. CABLES

**Connection Cables**

For maximum performance, always use new, good quality cables: their outer jacket must not be spoiled and the copper must not show oxidation. For proper operation, always consider the length of the connection, the load and the current it has to handle.

Clarion products are the most flexible and complete: they are designed and built in order to get the best out of every installation, especially when used with Clarion amplifiers.

#### Speaker Cable

The table refers to continuous power into 4 Ohm load. If load decreases, cable size will have to increase proportionally.

#### Power supply cable

If you don’t know your system current consumption, find it using the mathematical formula below and find this same value on the left hand column of the table. Then calculate the length of your connection and find this same value on the bottom column of the table. At the point where these two values cross is the minimum section in gauge (AWG) recommended for building a high performance, reliable system.

How to calculate your system current consumption

\[
I = \frac{TP \times 2}{V_{batt}}
\]

- **I** = Current consumption of your system in ampere (A);
- **TP** = Total power (RMS) of channels of all amplifiers in your system;
- **V_{batt}** = Usually value is 12 V, the nominal automotive electrical system voltage.

**Examples:**

- Your total system power (RMS) of all channels in all amplifiers is a combined 650 W.
- Your amplifier average 50% efficiency, as most amplifiers today.
- Your electrical system is 12 Volt.

\[
I = \frac{650 \times 2}{12} = 108,3 \text{ A Current consumption}
\]

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**Power & Ground cable calculation table**

(Minimum gauge recommended for MAINPOWER & POWER FLOW cables. MAINPOWER cables ensure higher instantaneous current transfer.)

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<th>Applied Power W</th>
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**Cable Size**

- **10**: 53.5
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- **2**: 9.4
- **1.5**: 9.3
- **1.0**: 2.1
- **0.8**: 1.3
- **0.6**: 0.8

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**Current Draw (I)**

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**Applied Power V_{batt} I = 12 x 2 = 24 W**
**Ground Terminals:** minimizing resistance and the consequent power losses associated with poor system grounding.

**Battery Clamps:** ensure high current transfer without the power robbing consequences of a high resistance connection.

**Fuse Holders:** are the first line of protection for your vehicle and yourself from dangerous short circuits. The high temperature case and waterproof construction ensure reliability in any environmental condition.

**Power & Ground Cables:** are of fundamental importance to obtain reference performance in your car audio/video system. The special structure of Main Power and Power Flow cables minimize eddy current power losses and allow high instantaneous current transfer, enabling you to experience the full dynamics of your music.

**Fuse Distribution:** their name tells you their function: transferring energy to electronic devices. They are available in various models, even modular and they can house the protection fuse. Fuse distributions are to be used in every system where you need to transfer a huge amount of current without losses.

**Ground Distribution Blocks:** are as important as the power distribution to your systems overall performance. Solid, low resistance ground points prevent harmful voltage differences between components and improve high-level current transfer without power loss.

**SUPERFARAD™:** capacitors act as a “current reserve” storing DC energy for when your amplifiers demand it the most.

**Speaker Cables:** provide that last step in the faithful reproduction of your music. They ensure the transfer of music to your speakers without the coloration or degradation of the signal.

**Audio Interconnects:** are the first component in your system that audio signals pass through. For faithful reproduction, they must transfer these signals from the head-unit to the amplifiers without modifying the sound, while at the same time, reject the tremendous amount of noise radiated by on-board computer-controlled devices in your automobile.
9. TECHNICAL SPECIFICATIONS

Power supply
Voltage
11 ~ 15 VDC
Minimum idling current
1.9 A
Idling current when off
0.02 mA
Consumption @ 14.4 VDC (MAX musical power)
65 A
Remote IN Voltage
7 ~ 15 VDC (1.3 mA)
Remote OUT Voltage
12 VDC (50 mA)
Internal fuse
3 x 30 A

Amplifier stage
Distortion - THD (1 kHz @ 4 Ω)
0.05%
Frequency Response (-3 dB)
4 Hz ~ 100 kHz
S/N ratio (A-weighted @ 1 VRMS)
>105 dB
Damping factor (1 kHz @ 4 Ω)
>120
Input sensitivity (PRE IN)
0.3 ~ 5 V
Input sensitivity (Speaker IN)
1.4 ~ 24 V
Input impedance (PRE IN)
15 kΩ
Input impedance (Speaker IN)
5 kΩ
Load impedance (MIN)
• 6 Channels
4 x 2 Ω + 2 x 1 Ω
• 5 Channels
5 x 2 Ω
• 4 Channels
2 x 4 Ω + 2 x 1 Ω
• 3 Channels
2 x 4 Ω + 1 x 2 Ω
Nominal output power (RMS)
PN @ 12 VDC 0.3% THD
65 W x 4 + 70 W x 2
Output power (RMS) @ 14.4 VDC 1% THD
• 6 Channels 6 Ch x 4 Ω
70 W x 4 + 75 W x 2
• 6 Channels 6 Ch x 2 Ω
115 W x 4 + 130 W x 2
• 6 Channels 4 Ch x 2 Ω + 2 Ch x 1 Ω
100 W x 4 + 200 W x 2
• 5 Channels 4 Ch x 4 Ω + 1 Ch x 4 Ω
- 
• 5 Channels 4 Ch x 4 Ω + 1 Ch x 2 Ω
- 
• 5 Channels 4 Ch x 2 Ω + 1 Ch x 2 Ω
- 
• 4 Channels 2 Ch x 4 Ω + 2 Ch x 2 Ω
- 
• 4 Channels 2 Ch x 4 Ω + 2 Ch x 1 Ω
- 
• 3 Channels 2 Ch x 4 Ω + 1 Ch x 4 Ω
- 
• 3 Channels 2 Ch x 4 Ω + 1 Ch x 2 Ω
- 
• 3 Channels 2 Ch x 4 Ω + 1 Ch x 2 Ω
- 

English
**TECHNICAL SPECIFICATIONS**

**Inputs/Outputs/Filters**
- OUT MODE: 5/6 Ch - 3/4 Ch
- IN A Ch: PRE/Speaker
- IN B Ch: PRE/Speaker
- IN C Ch: PRE/Speaker
- OUT (Full): PRE
- A Ch Filter: BYPASS/HI-PASS [50 Hz ~ 5 kHz] (12 dB/Oct.)
- B Ch Filter: BYPASS/HI-PASS [50 Hz ~ 1 kHz] / LO-PASS [250 ~ 5 kHz]/BAND-PASS (12 dB/Oct.)
- C Ch Filter: BYPASS/LO-PASS [50 Hz ~ 1 kHz]
- Subsonic: OFF/20/30 Hz (24 dB/Oct.)
- Active with C Ch. LO-PASS L+R
- Sub remote volume control: -5 ~ +5 dB Active with C Ch.
- LO-PASS 24 dB/Oct. L+R

**Size**
- D x L x H: 208 x 540 x 56mm
- Weight: 6.86 Kg

**Notes:**
- Specifications and design are subject to change without notice for further improvement.
- If this is not done, severe damage to the source unit may happen.