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Power Amplifiers

ABT-PA8080B

ABT-PA8160B

ABT-PA2650B

EN

User Manual

EN 54-16: 1997/A2:2006

Voice evacuation system amplifiers



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1. Characteristics and purpose of the document

This User Manual introduces the equipment user into correct operation and use of the family ABT-PAxxxxB Amplifiers. Information on installation, electrical connection, first operation and servicing is included in attached Technical Documentation.

Keep carefully this User Manual and any other attached documents for further reference. Ambient System bears no responsibility for damages caused by failure to observe this document.

2. General description

The ABT-PAxxxxB are a 2-U high 19" rack mountable, 8-channel (PA8080B, PA8160B) and 2-channel (PA2650B) high efficiency class-D power amplifiers, transformer isolated for 100 V, 70 V, and 50 V distributed loudspeaker systems. The amplifiers were specifically developed to maximum availability and durability to meet the requirements of EN 54-16 standard.

ABT-PAxxxxB power amplifier is used for amplifying and distributing an audio signal supplied by the VACIE system control unit or an external BGM source.

ABT-PAxxxxB are designed for perfect integration into AmbientONE system, but thanks to its flexibility, it can also be used for any Public Address applications.

Each channel, when used separately, can deliver up to 80 W (PA8080B), 160 W (PA8160B) and 650 W (PA2650B). Channels from one unit can be combined to deliver a multiple power of 160 W (PA8080B), 320 W (PA8160B) and 1300 W (PA2650B).

Amplifier unit has a single power supply with 42...57 V DC (nominal voltage: 48 V DC) that shares redundancy via the Ambient System Power Supply Equipment comply to EN 54-4: Power Supply Manager ABT-PSM48 works with ABT-PS48800 Power Supply Units and the 4 x 12 V VRLA battery bank as a back-up power source.

In addition to standard protection by fuses, the amplifiers also have electronic and thermal protection to protect them from all potential hazards.

ABT-PAxxxxB Power Amplifier series are designed to be mounted in the 19" IP 30 rack together with other system elements (i.e. power supply units, control unit).

This User Manual applies to operation of Power Amplifiers in three basic models:

- ABT-PA8080B – 8 audio channels x 80 W;
- ABT-PA8160B – 8 audio channels x 160 W;
- ABT-PA2650B – 2 audio channels x 650 W.

3. Operation

Ensure that the volume level of audio sources is set to minimum and the loudspeakers and all equipment are connected properly before turning the amplifier on.

CAUTION: The system is activated about 3 seconds after turning the device on. This is the regular operation of the amplifier that results from work of embedded automatic protection of circuits, loudspeakers and other connected components.

3.1 Front panel

Fig. 1. presents the front panel of Amplifier module, with its most important elements marked.

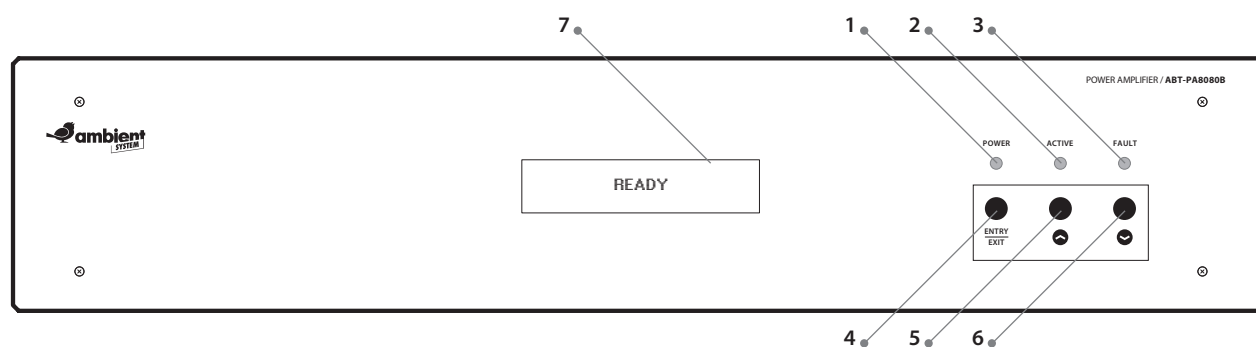


Fig. 1 Front panel of ABT-PAxxxxB Amplifier's

LEGEND:

- 1 Power**
Green LED indicates supply connection.
- 2 Active**
Green LED indicates proper operation.
- 3 Fault**
Yellow LED indicates amplifier failure.
- 4 Entry/Exit button**
Menu operation button.
- 5 Arrow Up button**
Menu navigation button.
- 6 Arrow Down button**
Menu navigation button.
- 7 Display**
Alphanumeric LCD Display presents the menu and status of the Amplifier.

Menu navigation by using buttons available at the front panel is presented in the following subsection.

3.2 Front panel operation

Fig. 2. and Fig. 3. present a part of the amplifier's front panel including buttons and LEDs indicating the condition of the amplifier's module, as well as the menu structure diagram in form of information available on the alphanumeric display.

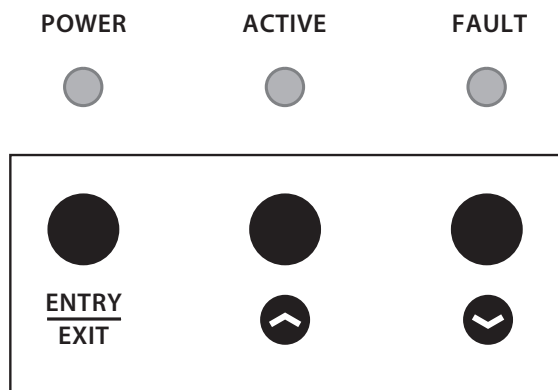


Fig. 2 Front panel buttons

Front buttons are used to control the amplifier from its menu. The menu enables monitoring the condition of channels (active/not active/over-heated/ fuse failures) and edit the level of the output signal of any of the amplifier's channels. The way of navigating across the menu using buttons is described under the figure.

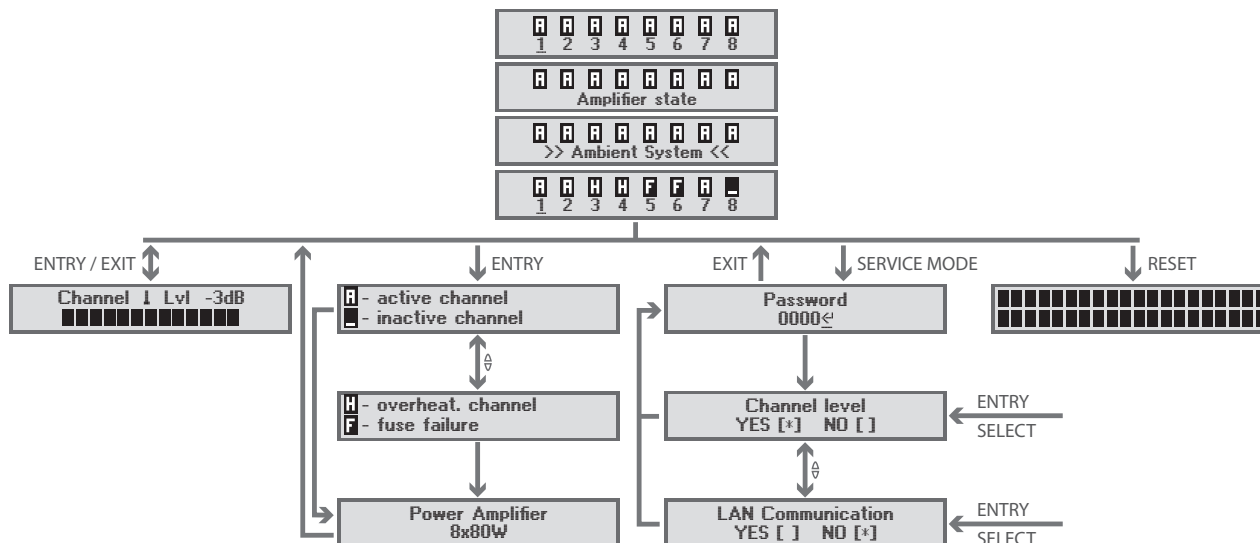


Fig. 3 Amplifier's menu structure block diagram

ENTRY – click ENTRY/EXIT button

EXIT – click ENTRY/EXIT button

SELECT – press ENTRY/EXIT button and hold for approx. 1 s

CHANNEL ATTENUATION LEVEL ADJUSTMENT – from the main level of menu, using arrows, choose the preferred amplifier's channel, click ENTRY/EXIT button, using arrows adjust the preferred signal level, confirm with the "EXIT" button

ENTER THE SERVICE MODE – press ENTRY/EXIT button and the arrow down button simultaneously, hold them for 1s. Use Arrows and Select to enter password. In service mode it is possible to disable visible attenuation edition and activate the ETH connector used for LAN communication. To modify settings, select an option using arrows then press ENTRY/EXIT button and hold for approx. 1s. To confirm changes click ENTRY/EXIT button.

DEVICE RESET – press Arrow Up and Arrow Down buttons simultaneously and hold them for approx. 3s. The device will reset and indicators tested.

Pressing the "ENTRY/EXIT" button in the main level of menu results in displaying the key containing the description of symbols occurring on the display. Double clicking the "ENTRY/EXIT" button enables to return to the main menu displaying the amplifier's state of operation.

3.3 Rear panel

Fig. 4 presents rear panel with markings of the used terminals.

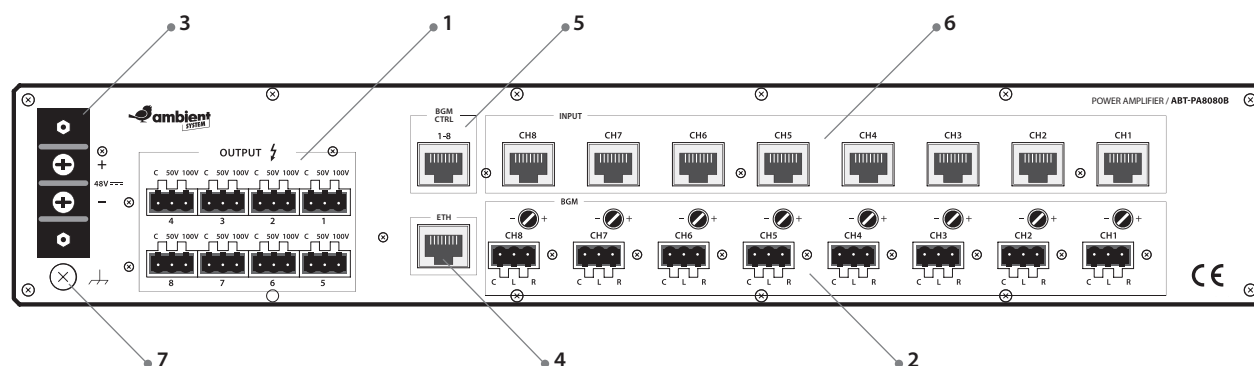


Fig. 4 Amplifier's menu structure block diagram

LEGEND:

1 Loudspeakers' lines output connectors

Speakers' lines output connectors are used to connect up to eight speaker lines to the unit. The user needs to ensure that connected speakers' lines impedance is equal or higher than rated value allowed for the amplifier. Channels' numbers are marked with digits form 1 to 8.

2 BGM inputs with sensitivity level regulators (optional)

Regulators provide smooth change of the inputs sensitivity level in range of -87 dB to 0 dB (0 dB=1 V). Turning the dial clockwise increases the input sensitivity, while decreasing the sensitivity occurs with turning it in the opposite direction.

3 DC power supply connector

The power supply connector is used to connect the 48 V DC (40 V – 57 V) power supply from Power Supply Equipment ABT-PSM48 module.

4 ETH communication connector (optional)

ETH communication connector is used for remote controlling of the state of the amplifier and regulation of the sound volume level.

5 BGM modules control inputs

In case of a fire danger occurrence the inputs turn off the BGM signal while the amplifier receives signals from the VACIE only.

6 Symmetrical audio inputs with control signals

Input connectors used for audio source and control connecting with VACIE systems. Each of the audio input connectors is equipped with the ground-lift option (jumper on a board inside).

7 Signal ground terminal

Details concerning parameters, installation, electrical connection and first run are described in relevant Technical Documentation.

4. Detailed descriptions of selected functions

4.1 BGM modules control inputs

Controlling input terminal, described on the amplifier's rear panel as BGM CTRL 1-8 is used for muting any of the eight BGM signals connected to the amplifier using the control unit. Like in case of the audio input terminal, the BGM CTRL 1-8 should be connected to corresponding pins of the control unit.

All signals controlling the muting of BGM modules are implemented in the form of optocoupler inputs in order to protect the amplifier and the control unit from possible interferences. Supplying low logic state from the control unit to any of BGM CTRL inputs results in muting the corresponding BGM signal.

4.2 Ground Lift

Each of the audio input connectors is equipped with the ground-lift option.

There is a jumper on the PCB inside that enables choosing the way of connecting terminal shield with the amplifier's ground; there is a possibility of a direct connection or through the ground-lift circuit that minimizes possible noise coming from different ground potentials of connected devices.

4.3 Amplifier's input channel bridging

Channels from one unit can be combined to deliver multiple power.

In need of changing output power configuration for each of amplifier's channels it is possible to bridge input signals. In this case 7 dip pins are used. They are placed on triple pin bars available on the PCB inside, near input terminals (CH1 – CH8).

Details concerning parameters, installation, electrical connection and first run are described in relevant Technical Documentation.

5. Manufacturer's remarks

Please note that Ambient-System is not responsible for results of unauthorized repairs.

Any repairs of the equipment should be made by Ambient System or a service centre authorized by Ambient System.

In any unresolved issues, please contact with Ambient System's trained personnel. A content contained herein is subject to change without notice. Ambient-System reserves the right to change or modify the product and conditions applicable to the use of this product at any time.



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