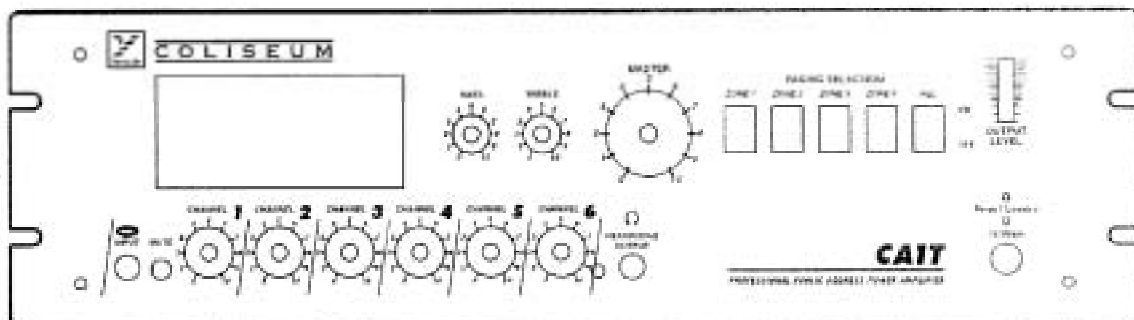




OWNER'S MANUAL
PROFESSIONAL PUBLIC ADDRESS AMPLIFIER

CA1 • CA1T



English

IMPORTANT NOTES

- Before connecting and using this amplifier, carefully read the instructions contained in a handbook, which we advise you to conserve for future reference.
- This handbook is an integral part of the product and must accompany it when changing owner, to allow the new owner to get to know the installation, operating, and safety instructions.
- Faulty installation of the amplifier frees SHOW from all responsibility.

▲CAUTION

To prevent the risk of fire or electric shock, never expose this equipment to rain or dampness.

SAFETY PRECAUTIONS

1. Please read the notes preceded by the symbol ▲with special attention, as they provide important safety information.
2. The power supply voltage of the amplifier has a sufficiently high value to involve the risk of electrical shock; therefore, **never install, connect, or disconnect the equipment with the power supply switched on.**
3. The metal parts of the equipment are earthed by means of the power cable. If the power socket used to supply power does not have an earth connection, call a qualified electrician who will earth the equipment by means of the terminal.
4. Make sure that the power supply cable of the equipment cannot be trodden on or crushed by objects, to ensure that the cable is not damaged.
5. To prevent the risk of electric shock, **never open the equipment:** there are no parts inside that the user can use.
6. Make sure that no objects or liquids can get into the speaker, as this could cause a short circuit.
7. Never attempt to make any repairs that are not described in this manual. Contact your authorized service centers or highly qualified personnel when:
 - The equipment does not function (or functions in an anomalous way).
 - The power supply cable has been seriously damaged.
 - Objects or liquids have got into the equipment.
 - The equipment has been subject to heavy impact.
8. If the equipment is not to be used for long periods of time, switch it off and disconnect the power supply cable.
9. If the equipment gives off any strange odorous or smoke switch it off immediately and **disconnect the power from the supply cable.**

PRECAUTIONS

- Do not obstruct the ventilation grilles of the equipment.
- Avoid having the amplifier work on overload for a long time.
- Fully tighten the screw terminals for speakers in order to ensure a safe contact.
- Do not force command parts (buttons, controls, etc.).
- When cleaning external parts, do not use thinners, spirits, or any other volatile substances.

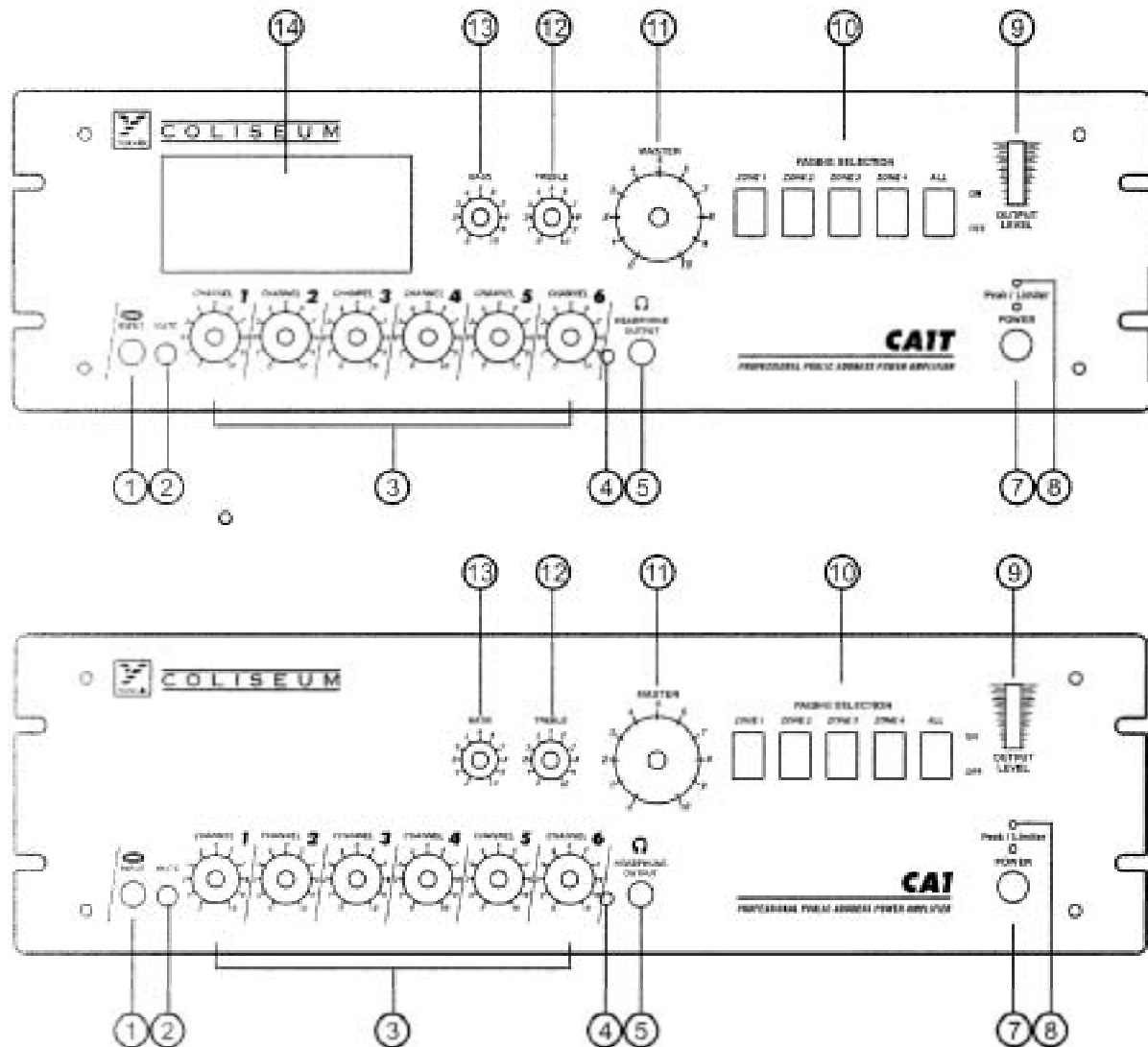
DESCRIPTION

The amplifiers in the CA1, CA1T series have been expressly designed for transmitting announcements through all PA sound systems. They incorporate the following functions:

- 1 unbalanced 6.3mm microphone-input jack, micro sensitivity.
- 3 combination jack (XLR and 6.3mm) inputs, line/micro switchable sensitivity with excusable 24V dc phantom supply.
- 2 stereo RCA input, four stage sensitivity selectable.
- 600Ω telephone paging input.
- 1 "PRE OUT" output.

- 1 "MONITOR OUTPUT" and "1W/8Ω" slave output for monitor music signal.
- 1 "MAIN IN" input.
- Input 1 priority on the other inputs with vocal activation.
- Input 1, 2, 3, 4 priority on the other inputs, activation with contact.
- Outputs for speakers with constant impedance (4 ohm) and constant voltage (25-70-100 V).
- Treble and bass controls.
- VU-meter with LED's.
- Protection against short-circuiting between output terminals.
- Direct current supplies 24 Vdc.
- Option zone paging selectable function, four zone paging and all zone paging.
- Option DTS AM/FM tuners. (Only "CA1T").

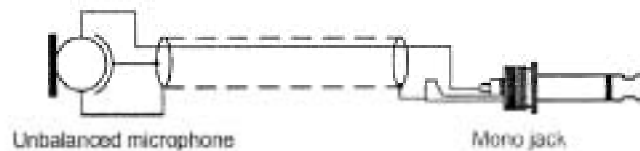
FRONT PANEL



CONTROL AND FUNCTIONS

1. "INPUT 1" input

This unbalance input lets you connect a low-impedance dynamic microphone (30-600ohms.). The connector is carried out as 6.3mm phone jack. The input features the "Voice Priority" function, which overrides all other input signals once, a microphone message is send. If you want to have this function disabled forever, please contact a SERVICE CENTER.



2. "Mute" function switch

This switch lets you turn the "Voice Priority" on or off of input 1 (1).

3. Input level controls

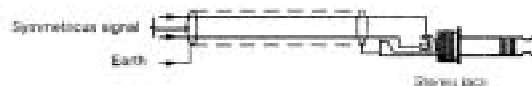
These controls let you individually set the volume of the sound source that are connected to the "INPUT 1", "INPUT 2", "INPUT 3", "INPUT 4", "AUX 1" and "AUX 2 / TAPE". Turning a control clockwise increases the volume of the corresponding source. We recommend to leave the controls of momentarily not used inputs at their minimal setting "0".

4. Music signal monitor output level control

The control let you individually set the volume of the sound output that are connected to the "MONITOR OUTPUT" (5) and "1W/8Ω" (32). Turning controls clockwise increase the volume of the corresponding source.

5. "MONITOR OUTPUT" output

This allows the signal output of the "AUX1", "AUX2 / TAPE", "CASSETTE" and "TUNER" input mixing. It can be used to control an audio appliance with input with impedance over 600 ohms (e.g. earphone or an additional amplifier etc.). The output signal is controlled only by the volume controls of the "AUX1", "AUX2 / TAPE", "TUNER" and music signal level control (4). This function is toggle switch the "1W / 8Ω" (32) additional loudspeaker.



7. "POWER" switch

Using the POWER switch lets you turn the main power on or off.

8. Indicator

When switching the amplifier's power on, the "PL" indicator lights. When the amplifier's output overload, the "OVER LOAD" indicator lights and interrupt output. For equipment life, you have to adjust the volume at a lower setting.

9. LED VU-meter instruments

This instrument shows the signal's output level. For proper operation of the amplifier correct volume setting of major importance. The first eight LED-segments on the down represent the area between -20dB and 0dB, in which the outputted level should be kept. In case the last two segments on the up are lit for a longer period of time, this means that the outgoing signal is driven into clipping, which mostly results in audible distortion. You have to adjust the volume at a lower setting.

10. Zone paging select switch

Speaker lines of each zone can be connected or disconnected independently "Z1~Z4".

To connect the speaker lines, turn the switch on. To disconnect the speaker lines, turn the switch off. Turn the "ALL" switch on allows announcement to the entire zone regardless of the setting of the individual zone selection switch can be operated.

11. MASTER volume control

The setting of this control determines the output level that is present at the loudspeaker

OUTPUT. We recommend to generally adjust the MASTER and the input level controls at mediocre positions. Extreme setting, where the MASTER is set to maximum output and the input controls nearly set to their minimum or vice versa are not recommendable.

12. Common TREBLE-control

When turned clockwise this control enhances the high frequency reproduction, while turning it counter-clockwise attenuates the treble frequencies. If the control is set to its center position, the overall frequency response is not being altered.

13. Common BASS-control

When turned clockwise this control enhances the low frequency reproduction, while turning it counter-clockwise attenuates the bass frequencies. If the control is set to its center position, the overall frequency response is not being altered.

14. Option DTS AM/FM tuners. (Only "CA1T")

I. Radio ON/OFF and volume control (VOL)

Radio can be operated if this knob is clockwise rotated and an indication appears on the display (2).

Rotate the volume control clockwise to increase the radio output signal level.

II. Display

This display indicates the receiving frequency and memory number. When the display is extinguished, the radio does not work.

III. AM/FM radio selection button (AM/FM)

Use this button to select the desired band. The band alternates between AM and FM with each depression of this button.

IV. Tuning button (UP/DOWN)

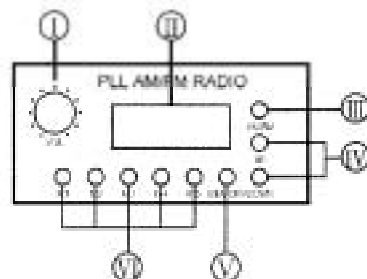
Use this button to select the desired station. If the down button is pressed for longer than 1.5 seconds, the AM frequency automatically decreases at 9KHz intervals, while the FM frequency automatically decreases at 0.1MHz intervals, till the radio is tuned in. To stop the selection manually, press the down key again during automatically tuning. Similarly, press the up button will increase **the AM frequency at 9KHz intervals and FM frequency at 0.1MHz intervals. The selection stops** when radio is tuned in or the up key is pressed again.

V. MEMORY button

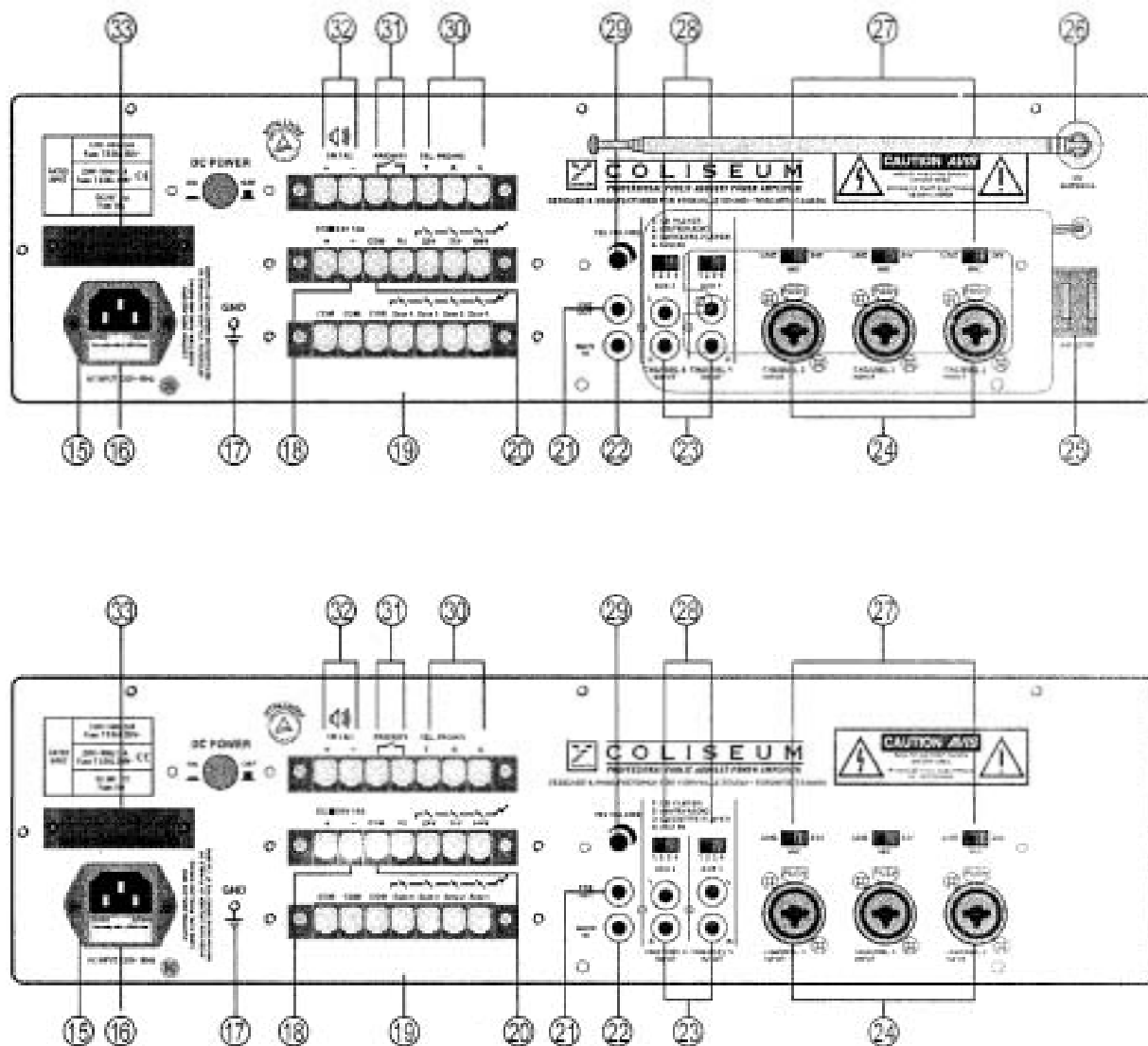
If the button is pressed, then press selection button (M1-M5), the frequency show on the display is stored together with the memory number. Stored data are kept for about one week even when the power is not supplied.

VI. Selection button (M1-M5)

Up to five of each of AM and FM stations can be stored. Press this button for shows the stored station frequency and memory number on the display (2).



REAR PANEL



CONTROL AND FUNCTION

15. Main cord connector

This connector is meant for the connection of the supplied mains cord.

16. AC fuse

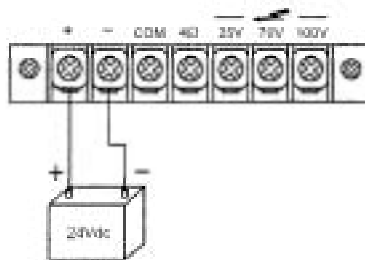
The fuse protecting the alternating currents supplies circuits of the equipment. The fuse can only be changed, in the event of a fault or changing the supply voltage, by an SHOW service center.

17. "GND" screw

In case the used mains outlet does not provide a ground conductor, this screw offers the possibility to ground the amplifiers metal parts. Nevertheless, you should leave this procedure to the experienced, qualified electrician.

18. Terminals for the DC battery supply

These two terminals allow the connection of an external 24V DC power supply (e.g. a 24V DC battery). In this way continuous operation of the amplifier is maintained even during a power outage, since it is automatically switched to the DC power source.

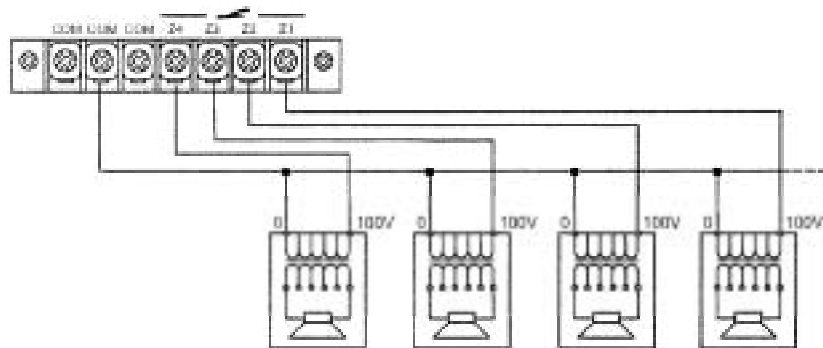


Notes

The amplifier is not capable of recharging the connected battery. Thus, it is recommended to have a suitable device at hand. When the amplifier is operated on the DC power source, the nominal power handling capacity drops by approximately 20%.

19. Zone output terminal

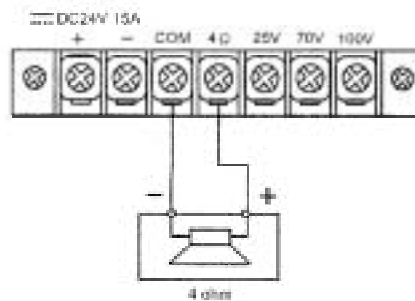
This output terminal connects to the speaker lines. Total speaker wattage is up to nominal power for zones 1-4. When using a zone selector low-impedance speakers cannot be used, default is constant voltage 100V output.



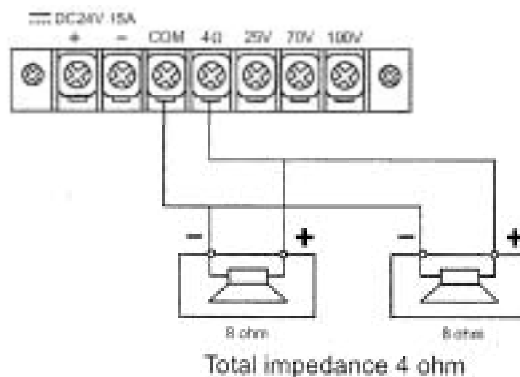
Connecting the speakers to 100V output

20. Output terminals

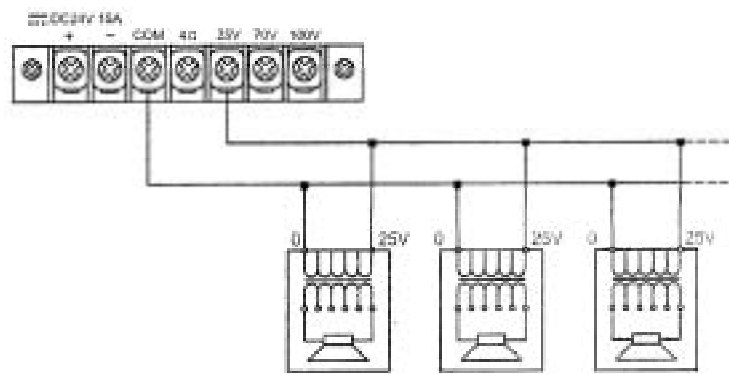
These 5 terminals allow connecting speakers.



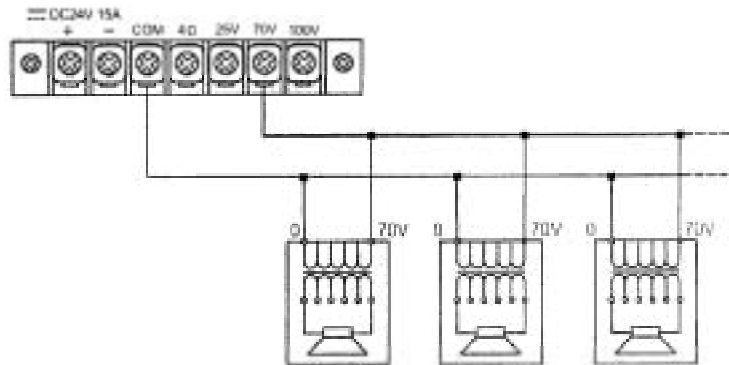
Connecting the speakers to 4 ohm output



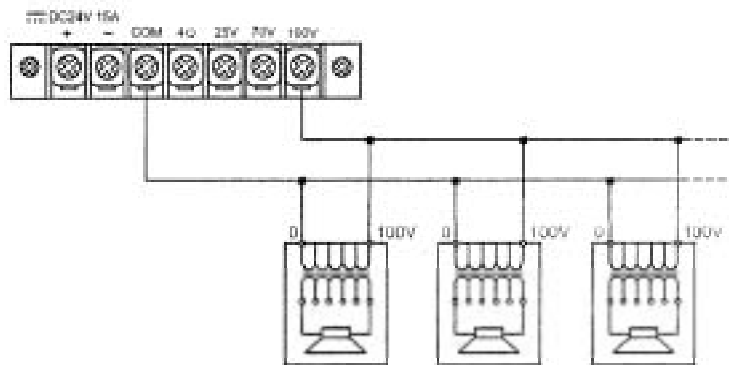
Total impedance 4 ohm



Connecting the speakers to 25V output



Connecting the speakers to 70V output



Connecting the speakers to 100V output

21. "PRE OUT" terminal

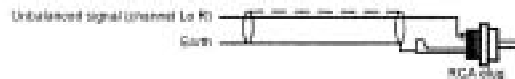
This terminal outputs the mixed audio signals of all sources that are connected to the amplifier's inputs and can be utilized to feed an external power amplifier, a signal processor (e.g. an equalizer), or any other external appliance. The unbalanced signal is affected by the individual input controls. Before using the PRE OUT you have to remove the bridging-strip between this binding post and the "MAIN IN" terminal (22).

22. "MAIN IN" terminal

After removing the bridging-strip between the "PRE OUT" and the "MAIN IN" terminals you can include an external signal processor (e.g. an equalizer) in the audio-chain between the pre-amplifier and the power output stage of the power amplifier. This opportunity provides a proper solution whenever shaping or improving the audio signal is necessary (adjusting delay times, equalizing, eliminating the Larsen-effect, etc.). The input is unbalanced, which is affected by the tone controls and the master volume control.

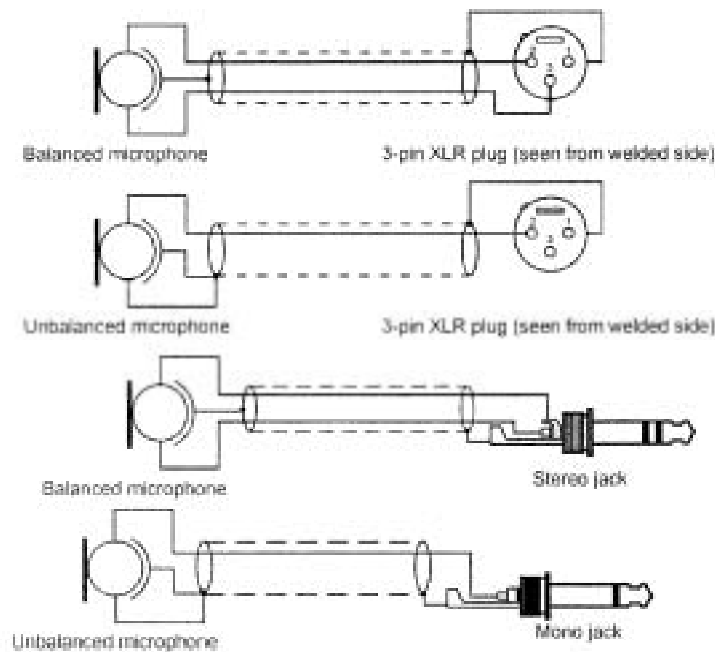
23. "AUX 1" and "AUX 2" inputs

These two RCA-type connectors let you connect the two channels of an external high-level unbalanced signal source, such as an AM/FM tuner, a cassette deck, a CD player, etc.. Use input sensitivity switch(28), suitable for difference appliances.



24. "INPUT 2", "INPUT 3" and "INPUT 4" Inputs

These three balanced/unbalanced combination type jack (XLR and 6.3mm) inputs, Meant for the connection of condenser type microphone that accept 24V phantom power, dynamic microphone (30-600 ohms) or a high level sound source (e.g. AM/FM tuner, cassette desk, CD player, etc.). In case you are using, it is necessary to use the switch (27).



Note

Connecting unbalanced microphones to the appliance when the phantom is switched on could lead to severe damage on the microphones and is therefore not permissible. It is absolutely mandatory to perform any plugging or unplugging of microphone cables with the phantom power turned off. Also make sure, that the phantom power is turned off when utilizing microphones that are not meant to be operated with phantom power, The voltage that is present on pin2 and pin3 of the XLR-connector could lead to severe damages on the microphones. When in doubt, please consult the owner's manual of the questionable microphone or contact your dealer before you perform any connections.

25. AM Loop antenna (only for have tuner type)

This antenna for receives AM frequency band waves.

26. FM antenna (only for have tuner type)

This antenna for receives FM frequency band waves.

27. "INPUT 2", "INPUT 3" and "INPUT 4" Inputs sensitivity and XLR phantom 24V switch

By turning these switch onto the "LINE" position the "IN2", "IN3", "IN4" input can be connected to an audio source with high level signal output. By turning these switches onto the "MIC" position the "IN2", "IN3", "IN4" input can be connected to a dynamic microphone with low impedance. By turning these switch onto the "24V" position connects the 24V phantom

supply on XLR of pin2 and pin3 of inputs "IN2", "IN3", "IN4" necessary to operate condenser type microphone which require this type of external supply.

It is recommended to use this switch with the general volume set on minimum.

28. Input sensitivity switch (AUX1, AUX2)

By turning these switch onto the "1" position the "AUX1", "AUX2", input suitable for connected to CD player signal output. By turning these switch onto the "2" position the "AUX1", "AUX2" input suitable for connected to AM/FM radio signal output. By turning these switch onto the "3" position the "AUX1", "AUX2" input suitable for connected to desktop cassette player signal output. By turning these switch onto the "4" position the "AUX1", "AUX2" input suitable for connected to high-level signal output.

29. Telephone paging input level control

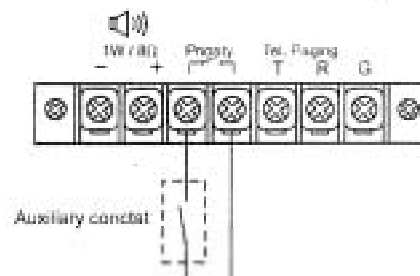
This control let you set the volume of the sound source that is connected to the "TEL. Paging" (30). Turning control clockwise increase the volume of the corresponding source. We recommend to leave the control of momentarily not used input at their minimal setting "0".

30. Input "TEL. Paging"

The terminals input lets you connected to a telephone signal (600 ohms). The input features the "Voice Priority" function, which overrides all other input signals once, a telephone message is send. If you want to have this function disabled forever, please contact a SHOW SERVICE CENTER.

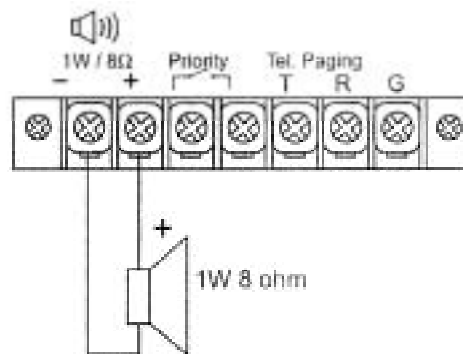
31. "Priority" terminal

When short-circuiting these terminals (i.e, by means of using an electrical switch), the audio signals coming from "AUX1", "AUX2 / TAPE", "CASSETTE" and "TUNER" are attenuated while the signals coming from "IN1", "IN2" and "IN4" are gaining priority.



32. Output terminal for auxiliary loudspeaker

The terminal is meant for the connection of a small external loudspeaker that gets driven by an internal auxiliary power amplifier, providing a nominal output 1 watt. Only the mixed audio signal coming from "AUX1", "AUX2 / TAPE", "CASSETTE" and "TUNER" are included in the outputted signal. In addition, the output signal is controlled only by the volume controls of the "AUX1", "AUX 2 / TAPE", "TUNER" and music signal level control (4). This function is toggle switch the "MONITOR OUTPUT" (5) additional loudspeaker.



33. DC switch

This switch lets you turn the battery supply on or off.

INSTALLATION NOTES

At all times, the amplifier has to be operated under appropriate conditions. This includes that the operation

location provided sufficient ventilation and the device is not exposed to direct sunlight or the direct radiation or reflection from any heat source. Installing the loudspeaker systems choose a location that gets not affected by extreme and / or constant vibration or other mechanical oscillation. Also make sure that the speakers are installed at locations that are free from dust and / or moisture.

⚠ CAUTION

We strongly recommend that you leave the connection of the appliance to the qualified and experienced service technical who is specialized in connecting electrical and electronically equipment. Do not take the risk of Electro-shock or shock hazard. To reduce the risk of Electro-shock, all connections have to be accomplished before it is permissible to connect the amplifier to the main supply. Before connecting the appliance to the mains supply, once again make certain that all connections are carried out correctly and that no short-circuit exist. The overall sound reinforcement installation has to be in accordance to the laws, regulations, standards, and guidelines that are relevant and applicable in the country where the equipment is going to be operated.

AC POWER SUPPLY

⚠ CAUTION

Before using the amplifier for the first time, make sure that the appliance's is set in accordance to your mains supply. Otherwise, please consult your SHOW dealer who will configure your equipment for the correct voltage. Connect the amplifier only to grounded mains outlets. Connecting the amplifier to the mains supply (115Vac respectively 230Vac) has to be accomplished by inserting the supplied mains cord into the corresponding socket (15) and afterward plugging it into a mains outlet.

DC POWER SUPPLY

⚠ CAUTION

A 24V DC power source (i.e. a battery) has to be connected to the terminals (18) that are covered by a protective lid. To reduce the risk of dropping voltage to a minimum and to eliminate the danger of damaging the battery cables by thermal overload, these cables have to be at least 2.5mm² in diameter, each. Switching the amplifier on or off is performed through the power switch (33).

CONNECTING THE OUTPUT TERMINALS

⚠ CAUTION

To avoid the risk of electrical shock, **never touch** the bare conductors leading to the output terminals of the amplifier when it is in operation. Under figures, show the possible connections of the "OUTPUT" speaker terminals accessible by removing the protective cover. Bear in mind the following rules:

Constant impedance lines

- The total impedance of the speakers connected **must correspond to that selected on the amplifier's output terminals.**
- The sum of the power capacities of the speakers must be no lower than the amplifier's

power capacity.

- The length of the connecting cables must be as possible; in any case, the longer the distance to be covered and the greater must be the cross-section of the cables.

Constant voltage lines

- Each speaker must be equipped with a line transformer with an input voltage equal to that of the line (25, 70, 100V).
- The sum of the power capacities of the speakers must **not exceed the output power capacity of the amplifier** (i.e. total wattage of speakers installed in zones 1 through 4).

Technical data

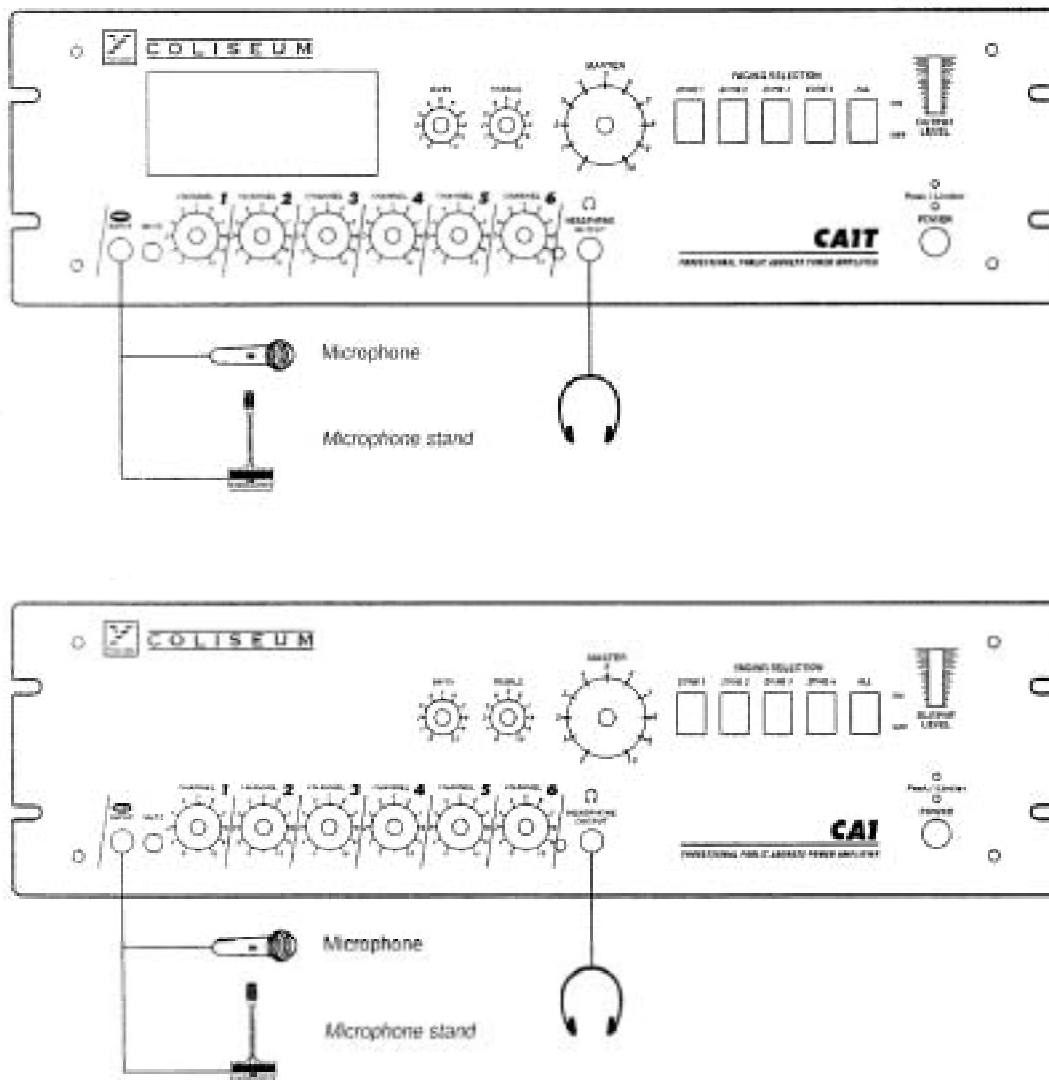
Amplifier section

Type	60W-Mono-tabletop 120W-Mono-tabletop
Output power capacity	Nominal: 60W- maximum:90W Nominal: 120W- maximum:180W
Nominal power capacity with supply at 24Vdc	45W 90W
Frequency response	50-15,000Hz (± 3 dB)
Total harmonic distortion	$\leq 1\%$ (1KHz-nominal power capacity)
Signal / noise ratio	INPUT 1-4, AUX1,2: >45dB MAIN IN: >55dB
Inputs / sensitivity-impedance	INPUT 1 / 6.3mm jack / -54dB(2mV)-300 Ω / unbalanced INPUT 2-4 / XLR and 6.3mm combination socket / balanced Micro: -60dB (1mV)-600 Ω Line: -22dB (75mV)-47K Ω AUX1-2 / stereo RCA jack / unbalanced 1: 0dB (1V)-240K Ω (for CD player) 2: -6dB (500mV)-120K Ω (for tuner radio) 3: -10dB (300mV)-75K Ω (for cassette player) 4: -20dB (100mV)-24K Ω (for auxiliary appliance) MAIN IN / mono RAC jack / 0dB(1V)-10K Ω / unbalanced
Outputs for speakers / Ohms	4 ohms
Outputs for speakers / Volts	25V-70V-100V (10 Ω , 83 Ω , 170 Ω) 25V-70V-100V (5 Ω , 42 Ω , 83 Ω)
Additional outputs / voltage-impedance	PRE OUT / mono RCA jack / 1V-600 Ω / unbalanced Loudspeaker / on terminal board / 1 watt-8 Ω Monitor output / 6.3mm jack / 1.5V-600 Ω / balanced
Tone controls	Bass ± 10 dB-100Hz Treble ± 10 dB-10KHz
Controls	7 volume controls for INPUT 1-4, AUX1-2 and tel. paging 1 master volume control 1 treble control 1 bass control 5 zone paging select switch
Power supply / Consumption	115/230 Vac ($\pm 5\%$)-60/50Hz / 200VA 115/230 Vac($\pm 5\%$)-60/50Hz / 400VA
Direct current draw (24V)	5A 10A
Dimensions(L x H x W)	480 x 320 x 150 mm
Weight	9kg 12kg

DTS radio tuner section

Band	AM / FM
Tuning range	AM: 531KHz-1602KHz in 9KHz step FM: 87.5MHz-108MHz in 100KHz step
Controls	Radio ON / OFF with volume control Band selector button Frequency UP / DOWN button Memory button 5 memory buttons
Indicator	LCD

Example of possible connections



EXAMPLE OF POSSIBLE CONNECTIONS

