

DIGITAL CONTROLLED AMPLIFIER

apart
CONCEPT

CONCEPT1(T)
Instruction manual

CONCEPT1(T) Manual



Safety Instructions

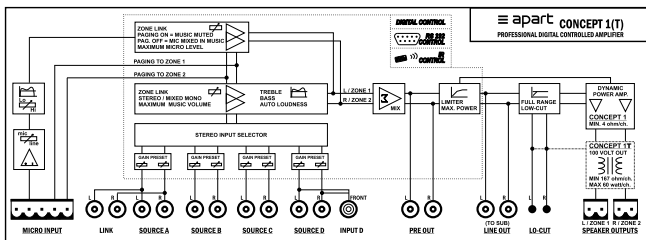
- Please check the carton box for any kind of damage on reception of the goods. In case of a damaged carton, please contact your dealer before opening the carton.
- !!!!! Danger !!!!! Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably to noise induced hearing loss but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient amount of time. Therefore it is recommended that all persons exposed to equipment capable of producing high sound pressure levels, such as this amplifier, be protected by hearing protection while installing or operating this unit.
- Read all documentation before operating your equipment.
- Keep all documentation for future reference.
- Save the carton and packing material even if the equipment has arrived in good condition.
- Should you ever need to ship the unit, use only the original factory packing.
- Do not spill water or other liquids into or on the unit.
- Make sure power outlets conform to the power requirements listed on the back of the unit.
- Do not use the unit if the electrical power cord is frayed or broken.
- Have gain controls on amplifiers turned down during power-up to prevent speaker damage if there are high signal levels at the inputs.

- Do not connect the inputs / outputs of amplifiers or consoles to any other voltage source, such as a battery, mains source, or power supply, regardless of whether the amplifier or console is turned on or off.
- Power down & disconnect units from mains voltage before making connections.
- Do not use the unit near stoves, heat registers, radiators, or other heat producing devices.
- Do not operate equipment on a surface or in an environment which may distort the normal flow of air around the unit. If the unit is used in an extremely dusty or smoky environment, the unit should be periodically “blown free” of dust.
- Do not remove the cover. Removing the cover will expose you to potentially dangerous voltages. Do not drive the inputs with a signal level higher than that required to drive equipment to full output.
- Do not run the output of any amplifier back into another input.
- In case of mal-function this device should be serviced by qualified service personnel only.

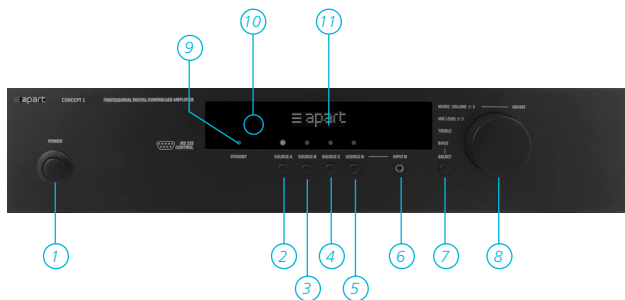
Main features

- 3 basic operating modes combined in 1 device: stereo, linked mono and individual mono.
- Paging microphone input with 2 zone programmable paging control.
- Standalone and/or RS232 controlled operation.
- Removable 19 inch rack ears.
- Menu driven hidden configuration accessible for installers only.
- Lockable front panel controls.
- Super simple no nonsense user interface.
- Multi functional stylish blue colour dot matrix VFD display.
- Presetable paging mic gain and separate tone control.
- Integrated switchable highpass filter for use with optional subwoofers.
- Separate line out and pre out (fixed and variable line outs).
- 4 stereo gain adjustable line inputs with additional link out on input 1.
- Line 4 input also available as a standard minijack in on the frontpanel for connection of personal audio devices.
- Programmable maximum microphone and music levels for all zones.
- Switchable automatic loudness compensation.
- 2 zone paging microphone optionally available.

- Low impedance (Concept 1) and 100 volt speaker line outputs (Concept 1T) available.
- Integrated limiter circuit.
- IR remote control optionally available.
- IR control extender optionally available.
- 2 x 60 watts freely assignable RMS output power at your disposal.



Front panel and display layout

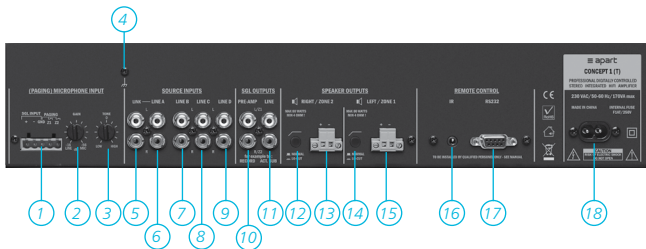


1. **Power on/off button:** push this button to turn the power on and off
2. **Source A selector:** push this button to select line source A
3. **Source B selector:** push this button to select line source B
4. **Source C selector:** push this button to select line source C
5. **Source D selector:** push this button to select line source D
6. **Source D minijack input:** this line input is shared with the source D connector at the rear
7. **Select button:** push this button to select basic submenus
8. **Multifunctional encoder knob:** turn this knob to adjust the main volume and other menu parameters
9. **Stand-by led:** this led is lit when the unit is powered off by RS232 control

10. Infrared receiver

11. Multi functional dot matrix VFD display

Rear panel layout



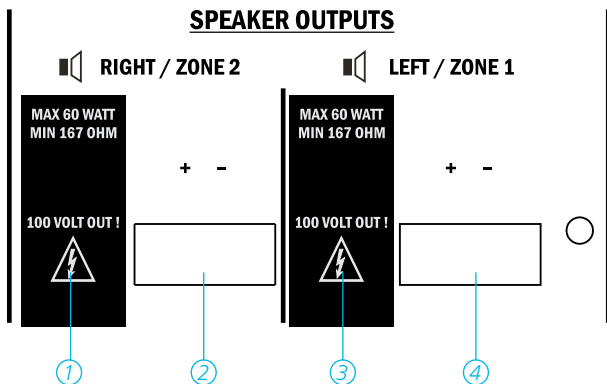
1. **Microphone input:** connect your (paging) microphone on this euroblock connector, connect the signal on +, -, the screen on GND. Connect the eventual paging contacts between GND and Z1 (for zone 1) and between GND and/or Z2 (for zone 2). The input gain can be adjusted with knob 2 between line and mic level to avoid distortion.
2. **Mic input gain control:** mic input gain adjust
3. **Mic input tone control:** adjust the tone of the mic input between dark and bright
4. **Ground connection:** connect your safety ground lead or screens of your shielded input cables on this screw if necessary.
5. **Link output:** the signal here is a copy of the line A input signal
6. **Line A:** stereo line RCA connector
7. **Line B:** stereo line RCA connector
8. **Line C:** stereo line RCA connector

9. **Line D:** stereo line RCA connector, a mini jack version of the line D input is available on the front panel. Only use one of the two input's at the same time.
10. **Pre-amp out:** these RCA connectors offer a line level signal, after the master volume, but before the limiter. For details, please take a look at the block diagram on page 7.
11. **Line out:** these RCA connectors carry the line level signal after passing the volume control and limiter circuit. This is an ideal way to connect to active subwoofers or extra power amplifiers
12. **Lo-cut right channel/zone 2:** when this button is pushed, the signal to the internal power amplifier reduces the sub bass frequencies for driving small sized top speakers. It works ideally in combination with subwoofers
13. **Right channel/zone 2 output:** use this euroblock connector to connect your right/zone 2 speaker, minimum load impedance is 4 ohm (167 ohm for T version)
14. **Lo-cut left channel/zone 1:** when this button is pushed, the signal to the internal power amplifier reduces the sub bass frequencies for driving small sized top speakers. It works ideally in combination with subwoofers
15. **Left channel/zone 1 output:** use this euroblock connector to connect your left/zone 1 speaker, minimum load impedance is 4 ohm (167 ohms for T version)
16. **IR jack:** connect the optionally available IR remote receiver on this minijack connector: Sleeve =GND, ring = data, tip = +5 VDC. Once this receiver is connected, the IR-receiver behind the front panel is bypassed.

17. **RS232:** 9 pin sub D connector for connection of computers or other automated audio system controllers
18. **AC input:** plug in the supplied mains cable here. Check your mains voltage first !

CONCEPT1T Version

Difference on CONCEPT1T



1. lo-cut Right channel / zone 2: switch not available
2. Right channel / zone 2 output on euroblock connector: minimum load impedance: 167 ohms or 60 watts / 100 volts
3. lo-cut Left channel/zone 1: switch not available
4. Left channel / zone 1 output on euroblock connector: minimum load impedance: 167 ohms or 60 watts / 100 volts

User Operation

The table below shows the 3 possible operating modes: stereo, 2 separate mono zones with one linked music volume control and 2 separate mono zones with individual music volume control. You can adjust the volume by turning the large rotary control from -80 dB (lowest) to 0 dB (highest). Volume adjustment is the default parameter assigned to the rotary control. In order to enter the menu, press the select button next to the large rotary control.

Example in stereo operating mode: press the select button once to show the first editable parameter, VOL appears in the display.

Push the select button a second time to adjust the microphone level, MIC appears in the display.

Push the select button a third time to adjust treble tone control, TREB appears in the display.

Push the select button a fourth time to adjust bass tone control, BASS appears in the display.

Push the select button again, EXPERT appears in the display. This menu is not allowed for the user. Push the select button again to return to VOL or wait a few seconds, the display will jump back to VOL automatically.

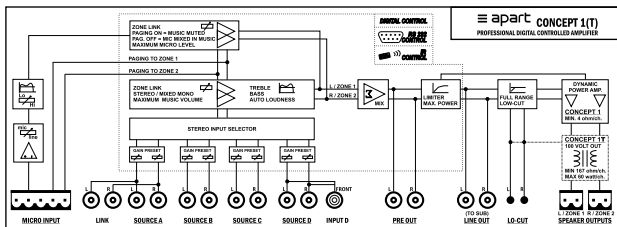
STEREO SYSTEM		2 SEPARATE ZONES WITH ONE LINKED MUSIC VOLUME CONTROL		2 SEPARATE ZONES WITH INDIVIDUAL MUSIC VOLUME CONTROL	
DISPLAY	MEANING	DISPLAY	MEANING	DISPLAY	MEANING
VOL	MUSIC VOLUME	VOL	MUSIC VOLUME	VOL1	MUSIC VOLUME ZONE 1
MIC	MICRO LEVEL	MIC1	MICRO LEVEL ZONE 1	VOL2	MUSIC VOLUME ZONE 2
TREB	TREBLE TONE CONTROL	MIC2	MICRO LEVEL ZONE 2	MIC1	MICRO LEVEL ZONE 1
BASS	BASS TONE CONTROL	TREB	TREBLE TONE CONTROL	MIC2	MICRO LEVEL ZONE 2
EXPERT	↑ RETURN or PROCEED TO EXPERT SETTINGS ↓ ("SELECT" + "SOURCE D'")	BASS	BASS TONE CONTROL	TREB	TREBLE TONE CONTROL
ZONE	set at 1 = 1. ZONE WITH STEREO SIGNAL	EXPERT	↑ RETURN or PROCEED TO EXPERT SETTINGS ↓ ("SELECT" + "SOURCE D'")	BASS	BASS TONE CONTROL
MMUV	set MAX. MUSIC VOLUME	ZONE	set at 2 = 2 SEPARATE ZONES WITH MONO SIGNAL	EXPERT	↑ RETURN or PROCEED TO EXPERT SETTINGS ↓ ("SELECT" + "SOURCE D'")
MMIL	set MAX. MICRO LEVEL	LINK	set at 1 = ONE LINKED MUSIC VOLUME CONTROL FOR BOTH ZONES	ZONE	set at 2 = 2 SEPARATE ZONES WITH MONO SIGNAL
ALD	set AUTOMATIC LOUDNESS ON/OFF	MMU1	set MAX. MUSIC VOLUME FOR ZONE 1	LINK	set at 0 = SEPARATE MUSIC VOLUME CONTROL FOR EACH ZONE
GAIN	set PRESET GAIN OF SELECTED SOURCE	MMU2	set MAX. MUSIC VOLUME FOR ZONE 2	MMU1	set MAX. MUSIC VOLUME FOR ZONE 1
PAG	set PAGING ON/OFF	MMI1	set MAX. MICRO LEVEL FOR ZONE 1	MMU2	set MAX. MUSIC VOLUME FOR ZONE 2
		MMI2	set MAX. MICRO LEVEL FOR ZONE 2	MMI1	set MAX. MICRO LEVEL FOR ZONE 1
		GAIN	set PRESET GAIN OF SELECTED SOURCE	MMI2	set MAX. MICRO LEVEL FOR ZONE 2
		PAG1	set PAGING ON/OFF FOR ZONE 1	GAIN	set PRESET GAIN OF SELECTED SOURCE
		PAG2	set PAGING ON/OFF FOR ZONE 2	PAG1	set PAGING ON/OFF FOR ZONE 1
				PAG2	set PAGING ON/OFF FOR ZONE 2

FRONT-PANEL CONTROLS CAN BE ENABLED OR DISABLED BY PRESSING "SELECT" + "SOURCE A" + "SOURCE B" .RS232 CONTROLLED

Expert Operation

In order to edit the EXPERT parameters, push select repeatedly until "EXPERT" appears in the display. Then press the 'SELECT' and the 'SOURCE D' button. A hidden menu structure is now available and gives you the opportunity to edit several parameters, such as operating mode, maximum music level and so on. The table shows the entire menu structure. The menu tree is also printed on top of the Concept1 unit and should need no further explanation. To leave the EXPERT mode: press 'SELECT' and the 'SOURCE' button simultaneously. In the EXPERT mode if there is no action for 1 minute, the unit will auto return to USER mode.

Blockdiagram



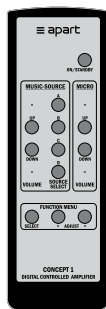
RS232 & IR Information

Please check our website for the latest information on RS232 and IR communication:

<http://www.apart-audio.com>

Accessories

CONCEPT1-RC

*Infrared remotecontrol unit.*

MICPAT-2

*2-zone paging microphone.*

ERROR conditions

Symptom	Display	Solution
No power	No display	Replace main fuse. The fuse is located inside the unit near the power switch. For qualified personnel only.
No power, unit is very hot	No display	Power off the unit, wait for cool down and power on again.
No sound	Amp error	Switch power off and on again, if error is not solved, check amp fuses on main pcb and replace if necessary. For qualified personnel only.
Overheated	Hightemp	Wait for cool down, reduce volume and check speaker loads.
Only for CONCEPT1T version		
No sound	Amp error	Check if the environment temperature is within the operating range of the unit (0 - 40 °C).

If any of these fault conditions occur, please unplug the power cord first, check your speaker lines, remove overloads.

Technical Specifications

CONCEPT 1	
Dynamics program power, both channels driven, 8 ohm	50 W + 50 W
Dynamics program power, both channels driven, 4 ohm	80 W + 80 W
Dynamics capacity at 1,7 ohm dips / ch	120 W
Note	Power output controlled by digital limiter
Lo-cut filter	75 Hz / 12 dB / oct
Speaker impedance - connection	4 - 16 ohms / ch - euroblock secured screw terminals
Digital control	
RS232	Sub-d9, galvanically isolated
IR (ir-remote control optional)	Front ir eye, rear mini-jack
Inputs / outputs	
Source inputs a-b-c-d input impedance / sensitivity	15 k Ω / 0,3 V -10 dBV, max 2,7 V +8,5 dBV
Source inputs a-b-c-d digital preset gain range	-20 / +14 dB
Source digital tone control	Bass 90 Hz, treble 15 kHz, +/- 14 dB
Automatic loudness	+6 dB (90 Hz) / +4 dB (15 kHz) to flat 0 dB
Micro balanced input impedance / sensitivity	1,5 k Ω / 1,5 mV -56 dBV, max 0,4 V -8 dBV

Micro balanced input rear panel gain trim	-56 / -16 dBV mic - line
Micro tone control ; rear panel lo - hi	100 Hz / +3 dB, 10 kHz / -6 dB to 100Hz/-9 dB, 10 kHz / +4 dB
Pre-out impedance / sensitivity	1 K ohm / 0 dBV
Line-out impedance / sensitivity	1 K ohm / +3 dBV
General	
Operation modes	Stereo / 2 zones linked / 2 individual zones
Micro paging	1 or 2 zone
Frequency response (- 0,5 dB)	10Hz - 40 kHz
THD	< 0,05%
IMD	< 0,09%
Noise a-weighted	> 100 dBV
Gain	33 dB
Damping factor	> 100
Protection systems	Dc, temp, clip, overcurrent, short-circuit
Cooling	Convection, no fan
Power consumption	Max 170 watts
Mains power requirements	240 - 230 VAC, 50-60 Hz
Temperature operating range	0 - 40 °C
Physical specifications	
Net dimensions (w x h x d) mm	430 (Without rackears) x 88 x 290 (320 including knobs)
Gross dimensions (w x h x d) mm	530 X 380 x 170

Net weight	6.6 kg
Gross weight	7.6 kg
CONCEPT 1T (100 volt output version)	
All specs same as above, except:	
RMS program power, both channels driven, 167 ohms / ch,	60 W / 100 volt + 60 W / 100 volt
Net weight	8.2 kg
Gross weight	9.2 kg

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Apart-Audio specifications are subject to change without notice.

