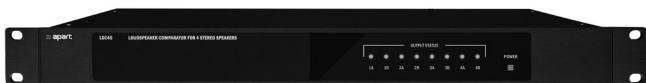




LSC4S
Instruction manual

LSC4S



Safety first!

- 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 high sound levels may cause a permanent hearing loss. Individuals vary considerably to sound pressure level induced hearing loss but nearly everyone will lose some hearing if exposed to high sound pressure levels 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 device, 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 are 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.
- Always operate the unit with the AC ground wire connected to the electrical system ground.

- 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.
- The apparatus may not be exposed to dripping or splashing and no objects filled with liquids may be placed on the apparatus.
- The appliance coupler has to be readily operable to disconnect the device.

Caution

CAUTION: a clipped or distorted audio signal at the input (overload) will come out as a clipped or distorted signal at the output, regardless of the output level and DSP processing power applied to the signal. Clipping occurs when the signal and/or the applied gain is too high, due to incompatibility of the signal level, a faulty source, an impedance mismatch or a human error. Therefore, monitor incoming signals and do not overload the inputs. Adjust the output level(s) and gain settings of your source(s) if necessary. Due to the internal gain structure of the LCS4S, the output signals may clip even when the input signals are relatively low. Do not over amplify audio signals. Boosting certain frequency bands or over compressing incoming audio signals may cause signal clipping, distortion and excessive noise at the output. If you have to add lots of gain, your incoming signal may be too weak.



CAUTION

TO REDUCE THE RISK OF ELECTRIC SHOCK
DO NOT REMOVE COVER OR BACK
NO USER-SERVICEABLE PARTS INSIDE
SERVICING ONLY FOR QUALIFIED PERSONNEL



General description

This device is NOT designed to be used as a music system.

The LSC4S is a 4 channel stereo speaker comparator, used as a sales tool to compare the quality of up to 4 different speaker pairs. Speaker comparing is mostly done in demo situations or audio shops, to allow end users to hear the quality difference between multiple speaker (-pairs).

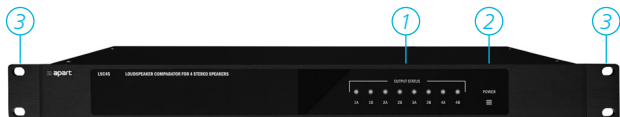
The LSC4S is equipped with 2 stereo line inputs for source connection (preferably CD player with highest quality) and 4 stereo class-D amplified outputs. The unit has a built-in webserver and WiFi Access Point for TCP/IP connection for control through any mobile device or computer that has a web browser installed.

Features

- Internal webserver GUI for control
- Internal WiFi access point 2.4 GHz 150 Mbit/s IEEE802.11b/g/n pre-configured
- Stand alone operation
- 2 stereo unbalanced line inputs using RCA connectors
- 2 stereo unbalanced line outputs using RCA connectors
- 8 x 30 W class-D amplifier outputs (6-12 Ω)
- Universal integrated switching power supply: 85-264 VAC / 47-63 Hz
- Front LED indication for active output
- Removable 19" rack ears

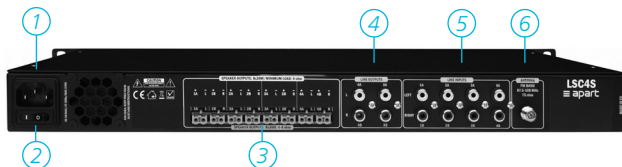
Connections

Front panel



1. **Output status:** These LEDs indicate the active output. Only one output can be active at any time. Both LEDs (left and right) of the active output will be lit. The LEDs also indicate the status of the amplifiers, when an amplifier output is short circuited, the output LED will start to blink.
2. **Power LED:** illuminated when mains power is present and the unit has been switched on.
3. **Removable rack ears.**

Rear panel



1. **Power inlet:** Connect the power cord here.
2. **Power switch:** Power the unit on and off.
3. **Ampifiers:** There are 8 class-D amplifiers in the LSC4S. Speakers are connected with the included female euroblocks. Each output is protected against short circuit, thermal overload and DC error.
4. **Line outputs:** These are line level signal outputs which are a copy of the amplifier's outputs 3A, 3B, 4A and 4B. They can be used to feed a signal to a larger external amplifier so that higher powered speakers can also be driven as part of the demonstration system.
5. **Line input 1 and 2:** The LSC4S has 2 stereo line inputs.
Line input 3 and 4: These connectors are not in use.
6. **FM Antenna:** This connector is not in use.

Connecting speakers

With the LSC4S, you can compare up to 4 stereo or mono speaker sets. To connect mono speakers, leave outputs B not connected and only use a mono source, connected to input A.

The following speakers can be connected:

- Small - medium sized
- Impedance: 6 - 12 Ω

The following speakers CANNOT be connected:

- 70 V, 100 V speakers
- Active speakers
- Subwoofers

Make sure to connect the plus from the speaker to the plus from the output and the min from the speaker to the min from the output. Never connect speakers in parallel or in series.

To compare speakers in an objective way, make sure that:

- All speakers have the same impedance. If not, the volume will be different and this will influence the perception of the quality.
- Place the speakers at ear height.
- Use cables from LSC4S to the speakers with sufficient diameter (minimum 1.5 mm²) and keep all cables as short as possible and at same length.
- Use a high quality source (CD player) with original CD recording, no copies.
- Choose a dynamic track with good low – mid – and high frequencies.

Connecting your control device

- Start-up the LSC4S and wait for some seconds.
- Make sure your pc or tablet is in DHCP mode.
- Scan your WiFi Network card (from PC or tablet) for the SSID "LSC4S".
- Insert the requested password "Comparator".
- Once connected to the LSC4S network, open your web browser and open the link "<http://192.168.1.10>". This link will open the GUI to control the comparator.

IMPORTANT NOTE: Never use two or more LSC4S devices in the same area since the internal WiFi access point uses the same SSID. This will cause network conflicts.

If you need to compare more than 4 speaker sets, you need to reconnect the speakers and do the comparing in two series or you can use the ME-LCSS 16-channel speaker comparator.

The control of the LSC4S can be done from a wireless device such as a tablet, PC, laptop, ...

Be sure not to connect two or more control devices simultaneously to the LSC4S.

Comparing speakers

Opening the link "<http://192.168.1.10>" via your web browser will open the GUI to control the comparator.

There are four "Out" buttons to activate the connected speakers. Pushing "Out 1" button will switch OFF all speakers except the speakers connected to output 1A and 1B. Pushing "Out 2" button will switch OFF all speakers except speakers connected to output 2A and 2B and so on.

In this way you can compare easily the quality of multiple speakers.

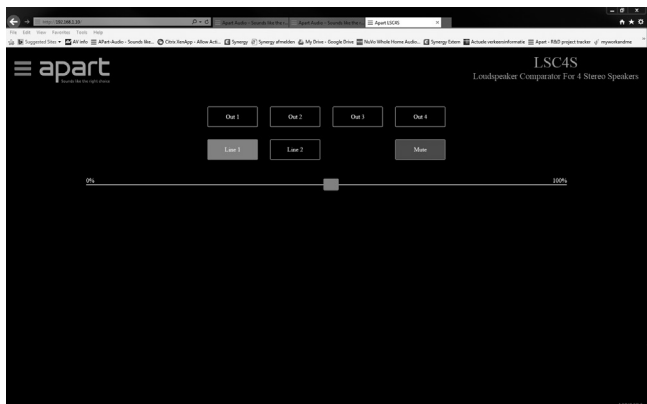
There is no possibility to play multiple outputs simultaneously.

Note that there is no Equalizing of the signal, all speakers use the same source, the same pre-amplifier and identical power amplifiers.

The MUTE button will switch OFF all speakers. To continue the comparison, just click one of the four Out buttons.

With the Source buttons, you can switch over from Line Input 1 to Line Input 2 or vice versa. This selection will switch all outputs simultaneously.

The volume slider will increase or decrease the volume of all outputs simultaneously. When the volume of channel 1 is increased and then channel 2 is selected, the volume of channel 2 will be increased as well. In this way, the speakers will be compared at equal volume level.



Specifications

Unbalanced stereo inputs	
Input impedance	10 k Ω
Input sensitivity	940 mVrms
Maximum input voltage	3.5 Vrms
Amplifier Outputs 1- 8	
Minimum load	6 Ω
Maximum output level	+26 dBV
SNR	98 dB @ 1% THD, 1 kHz
THD-N full power - 6 dB @ 1 kHz	0.061 %
Noise floor	-74 dBV
Noise floor muted	-119 dBV
Channel separation	
Line input to amplifier output ch1A – ch1B	84 dB @ 1 kHz, 65 dB @ 20 kHz @ full power with 8 Ω load
Power supply	
Power supply	SMPS
Input voltage range	85 - 264 VAC
Maximum power	150 W
Dimensions and weight	
W x D x H	484 x 316 x 44 mm
Net weight	4.1 kg
Amp topology	
class-D	

WiFi Access Point	
2.4 GHz	
IEEE802.11b/g/n compatible	
150 Mbps maximum	
WPA2-PSK	
IP 192.168.1.1	
255.255.255.0	
DHCP range	192.168.1.150 - 199
SSID	LSC4S
PSWD	Comparator

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Apart-Audio specifications are subject to change without notice.

