



Overview

The Keene K-LAB-20-DS is a compact, powerful stereo slave amplifier built onto a standard size UK double gang wall plate. It provides 20W (RMS per channel) of amplification eliminating the need to make space for a conventional amplifier. It draws it's own power from an externally located mains adaptor and will automatically switch from low power standby when an audio signal is detected. The amplifier uses class D digital circuitry for maximum efficiency and generates very little heat. The amplifier only requires 25mm depth and so may be either flush or surface mounted.



Installation & Connection

Installation should only be carried out by a qualified installer or electrician, as a certain amount of electrical knowledge is assumed.

Mounting

The 25mm depth will allow installation into standard UK 2-gang boxes, which may be galvanised metal for installation in solid walls, or plastic drylining (with lugs) or surface mount box or trunking system.

IMPORTANT - Please Read!!!

The front panel membrane has two tabs that can be flexed outward to allow access to the panel fixing screws. Once fastened in position and tested the backing paper can be peeled off and the tabs fixed down flush to conceal the screws. ONLY perform this operation once the installation has been tested and found to be satisfactory. Once stuck down these tabs cannot be removed without damage to the front panel.



Replacement front panels are available, (part number KLAB20DSFP)

Wiring

In order to make a reliable and safe connection without short circuits it is recommended that the speaker cables and line input signal cables are prepared and tinned prior to connection, with no more than ¼" or about 7mm of tinned wire extending out of the insulation.

Power

The amplifier requires a power supply of 12v to 18v DC centre positive and a minimum current of 3500mA. If you are not using the recommended psu please verify that the supply is correct BEFORE connection. If using the recommended supply we suggest that it is connected in accordance with current wiring regulations. The amplifier can also be powered from a 12v car battery but NOT directly from a car battery charger as this would damage the circuitry.

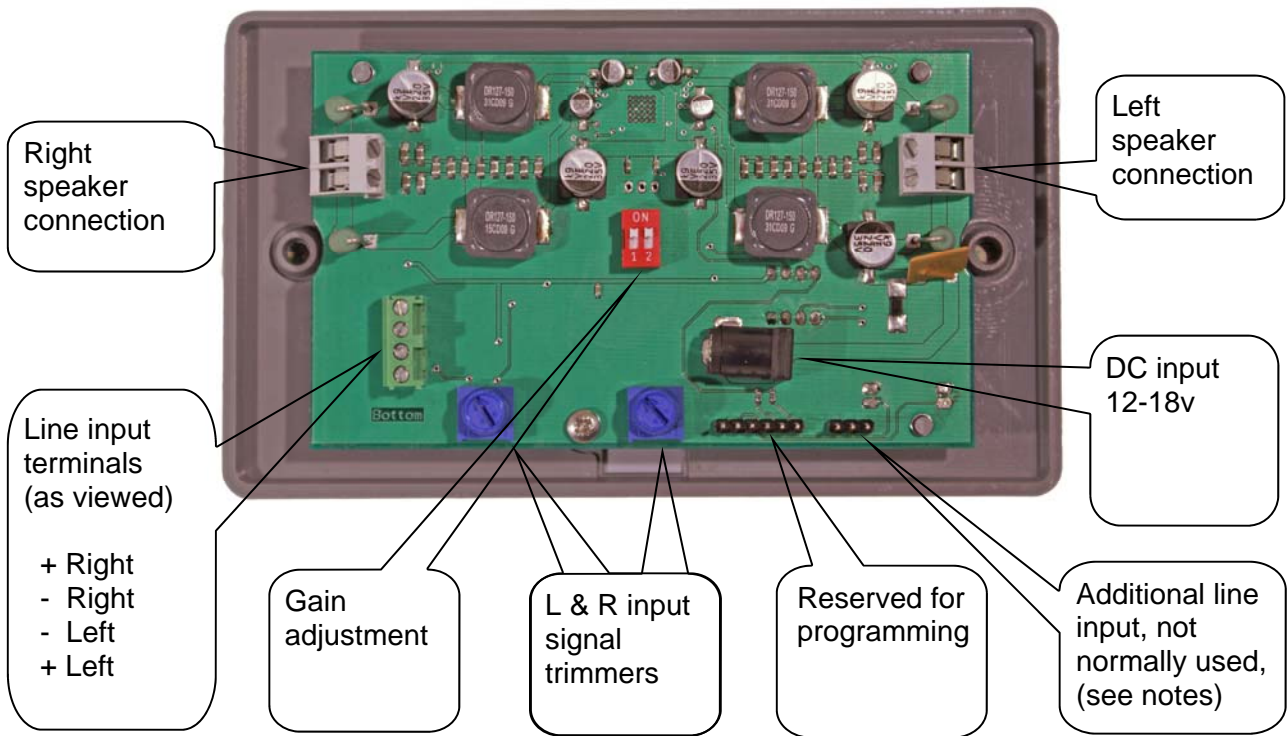
If using the recommended supply we suggest that it is hidden in the cavity wall or another dummy pattress. **The mains connection should be via a fused and switched mains outlet such as order code SWL1 from Keene Electronics.**

Environment

The KLAB20D is not IP rated for use in damp environments but if due care is given to positioning of the amplifier and supply then it can be used in zone 3 installations. Please use a qualified electrician operating to current regulations if you intend to use this unit in a bathroom.

Installation continued..

Connections for Power, Line Input and Loudspeaker Outputs are located on the rear PCB.



Loudspeakers

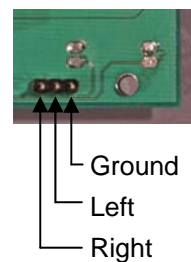
Connect the loudspeakers being careful to keep both left and right phase connections the same. Please note that the amplifier is fully bridged so there is NOT a common ground or return connection. The recommended minimum speaker impedance is 4 ohms on each channel. If driving 2 speakers or more on each channel use them in series if they are both 4 ohms or in parallel if they are both 8 ohms. Note the speaker corresponding to the left input is actually on the right hand terminals in the amp as viewed from the front.

Line input

Connect the input signal cables using tinned screened cable. Connect the screens to the 2 centre connections and the 2 signal wires (centre cores) to the top and bottom connectors. Note all the connectors are of the superior rising clamp style so that they make a sound connection without biting through the copper of the cable.

Additional Line input (not normally used)

These three pins are commoned with the slave amplifier line input and can if desired be connected to the corresponding three line output pins on a KLAD20D. You will need to construct your cable using 3 pin headers (0.1" pitch).



Gain and trim adjustment

The dip switched can be used to adjust the amplifier gain if required.

Switch 1	Switch 2	Amplifier gain (dB)
On	On	20 (factory default)
Off	On	26
On	Off	32
Off	Off	36

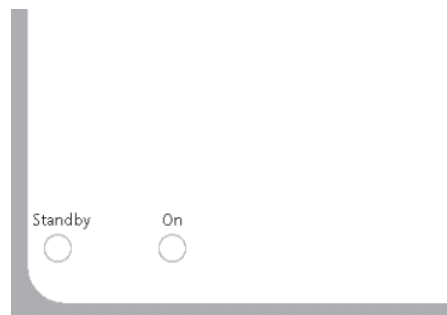


The rotary trimmers can be used adjust to the relative levels of the left and right signals, and will also provide a small degree of gain control.

Double check all connections and, if all is well then fasten the panel into the mounting box. Switch on the power source and observe the LED's. If all is well then the blue "on" LED should be illuminated. If there's no hideous screeching sound from the loudspeakers or smoke pouring from the unit then it's probably all connected correctly and it should be safe to proceed to the operation instructions. Do not fasten down the tabs until you are certain that everything is working as it should!

Front panel overview

Upon receiving power the KLAB20DS will default to "on" (blue LED only on). If no audio signal is detected then within 5 seconds then red "standby" LED will also come on. At this stage the amplifier is still "on". If a further five minutes elapses with no audio signal being detected then the "on" LED will go out leaving just the "standby" LED illuminated. The amplifier will stay in this power saving mode until audio signal is detected.



Specifications:

Power output (15v supply):	20W RMS per channel into 4ohms
Power output (12v supply):	15W RMS per channel into 4ohms
Total Harmonic Distortion + Noise:	0.15% (4ohm load, 1KHz, 8W power)
Bandwidth:	20Hz to 22KHz Passive limitation built in
Power Supply:	12V to 18V (absolute max 18V DC) minimum current 3.0A. Connection via a 2.1mm DC connector centre positive, auto mute on under voltage.
Fuse:	self resetting 3A built in – to clear remove power for at least 20 seconds, clear fault and reconnect
Amplifier topology:	full bridge mode all speaker connections are live (no common ground connection)
Recommended minimum speaker impedance:	4 ohms per channel
Absolute minimum speaker impedance:	3 ohms per channel
SNR:	98dB
Voltage gain:	33dB
Input required to produce full output:	approx 775mV
Standby current	20mA (0.3W at 15v supply)

Part numbers you may find useful:

Architectural Wall/Ceiling mount loudspeakers
5 1/4" 25W [CMS5U]
8" 30W [CMS8U]

Switched Spur outlet

An MK style switched fused spur outlet, ideal for making a safe connection to the KLAB20D power supply. [SWL1]

Power supply (input: 100-240v AC, Output: 15v DC 4.0A)
[KLABPSU]

Replacement front Fascia panel
[KLAB20DSFP]

Loudspeaker cable 42 strand OFC
[KBL31]