

keene electronics KLAB20D

Overview

The Keene K-LAB-20 is compact, powerful stereo 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 can be controlled by push buttons integrated into the front panel membrane and also by infra red remote. It can be switched between three audio sources; an integrated FM radio, rear line inputs and a front panel 3.5mm jack input. 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 KLAB20DFP)

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

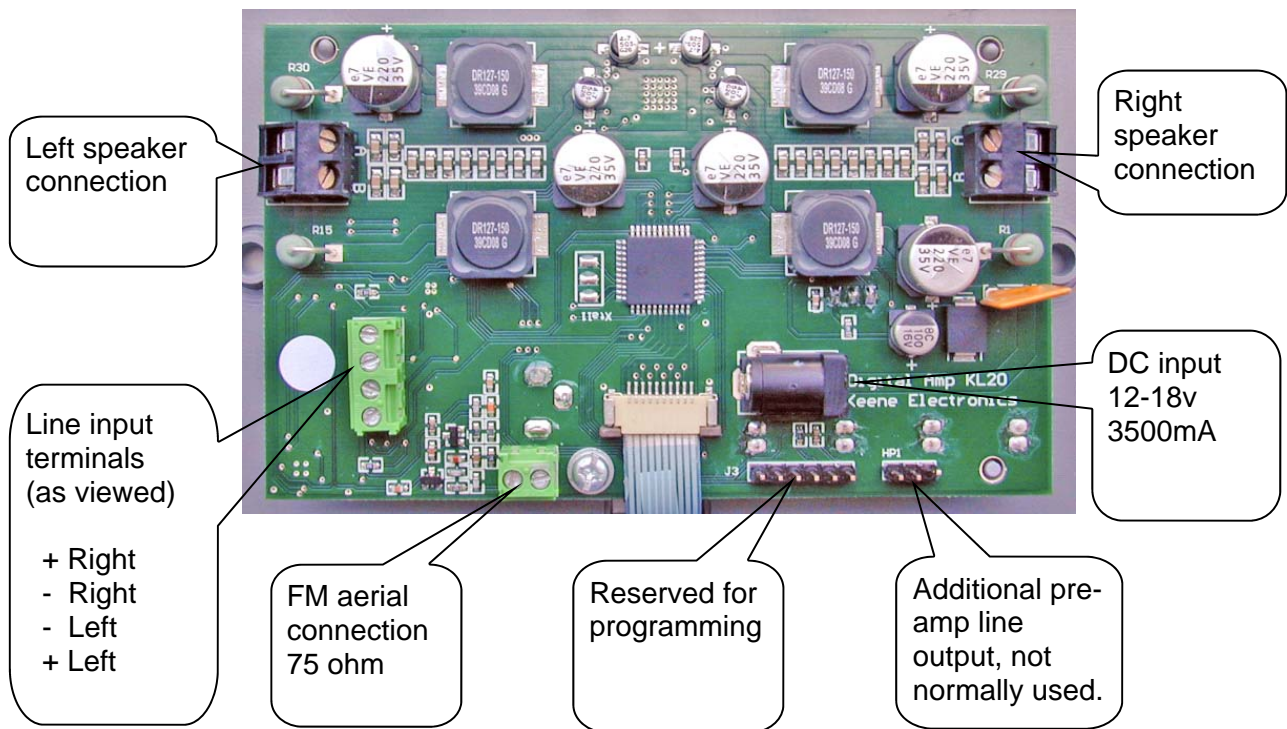
The amplifier requires a power supply of 12v to 18v DC centre positive and a minimum current of 3500mA. If you are not using the recommended psu please verify that the supply is correct BEFORE connection. If using the recommended supply we suggest that it is connected in accordance with current wiring 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. Do not install near any heat sources such as radiators, stoves, or other apparatus that produce heat. **The mains connection should be via a fused and switched mains outlet such as order code SWL1.**

Environment

The KLAB20D is not IP rated for use in a 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

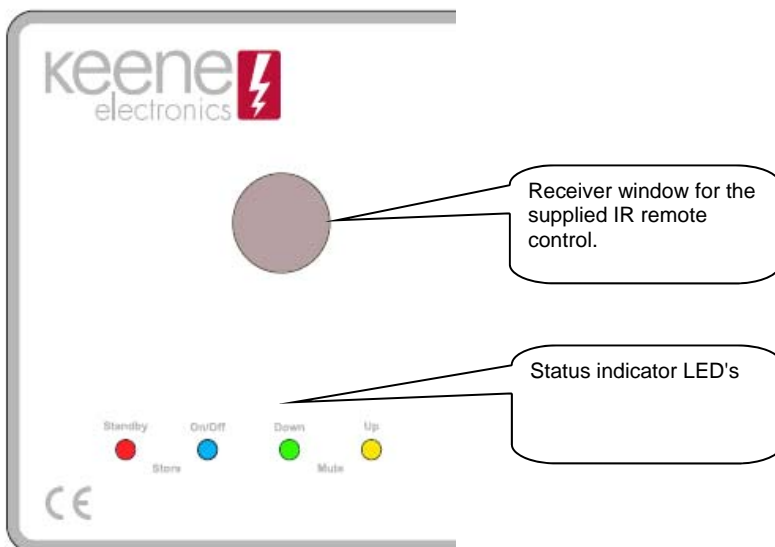
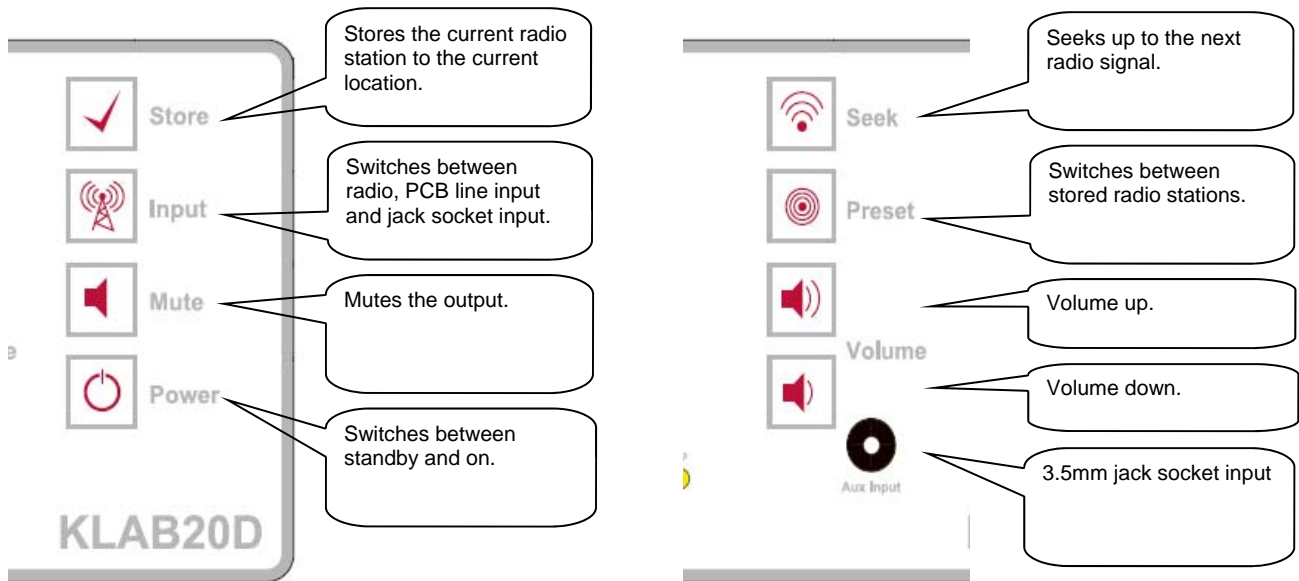
Connect the input signal cables using tinned screened cable. Connect the screens to the 2 centre connections and the 2 signal wires (centre cores) to the top and bottom connectors. Note all the connectors are of the superior rising clamp style so that they make a sound connection without biting through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

Aerial

The FM radio requires a 75ohm aerial for operation. The bare wire ends of the supplied aerial cable should be connected to the terminals on the PCB and the other end arranged in a "T" shape as best as possible within wall or ceiling. If the cable needs to be extended then use similar sized 75ohm impedance cable. If you wish to connect to an external FM loop aerial then use coaxial aerial cable such as KBL 7. Polarity of the supplied aerial is not important, although if using coaxial cable then connect the screen (ground) to the right hand terminal closest to the PCB screw.

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 the red "standby" LED (only) should be the only one 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 proceeding as it should!

Front panel overview



Notes

When the unit first receives power it will default to standby.

Switch the unit on, either by pressing the power button on the front panel or using the supplied remote control.

Firstly please note that the volume control system used does not go to zero volume, the mute button is provided for when you require the unit to produce no sound.

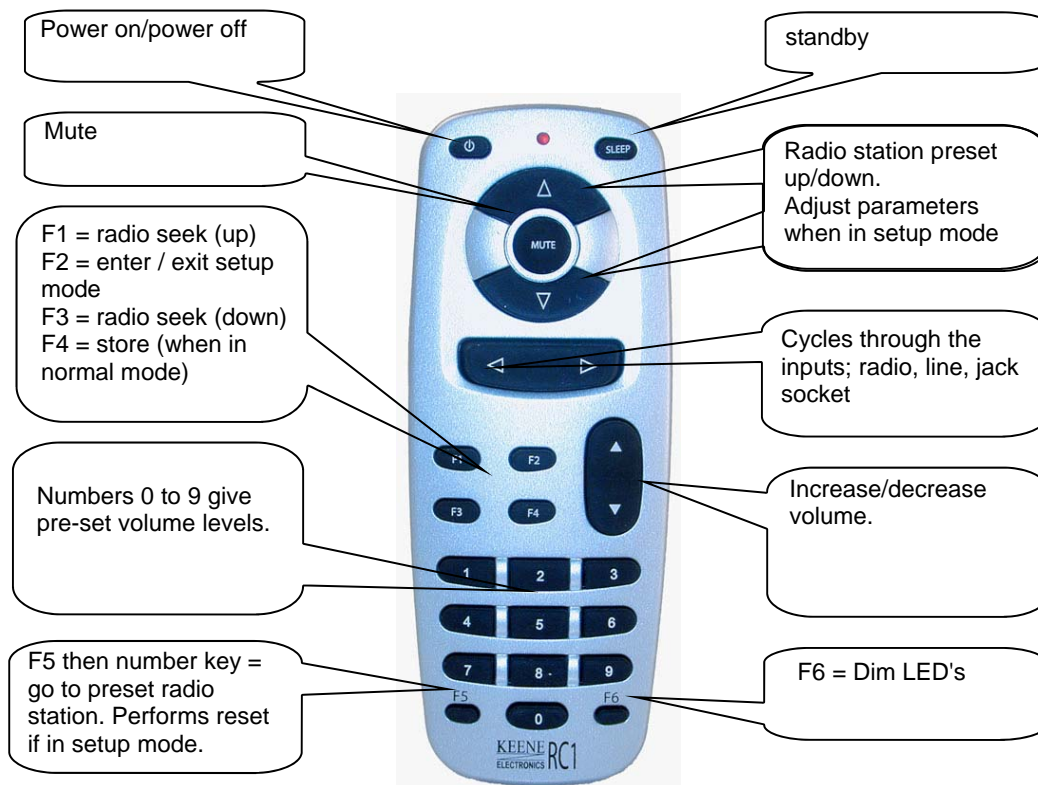
There are 256 steps to the volume control from a minimum volume of 0 to a maximum volume setting of 255. These are accessed by pressing the volume up and volume down buttons. The 10 number keys from zero (minimum) to 9 (maximum) provide quick way of selecting a range of preset volumes within this range.

The power will also put the unit into standby although only the power button can be used to switch the unit back on again.

It is safe to leave the amp in standby as very little current (less than 100mA) is used in that mode. In standby only the Red power LED will be illuminated. This is the normal method of switching off the amp.

All the LEDs are configured to fade as the ambient light level drops; this is so that the led brightness does not look excessive even in a darkened bedroom. The "F6" key on the remote will force the LED's to dim regardless of light level.

In the event of a power failure the amp will come back on in to standby mode and will remember the last stored parameters.

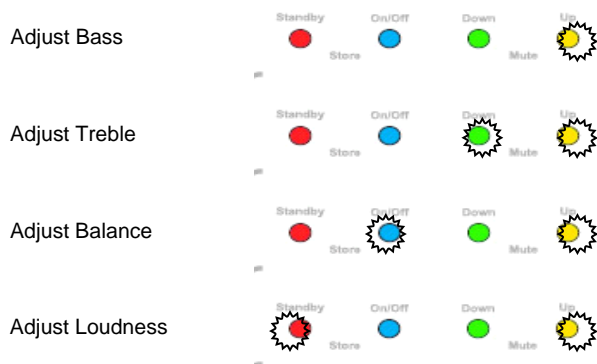


Adjustment procedure for bass, treble, balance and loudness:

To enter setup mode press F2 and hold for 3 seconds.

Bass, treble, balance & loudness can now be adjusted. F4 cycles through these parameters and the radio preset up/down will adjust the levels. To exit setup procedures press F2 again. To store the current settings to memory so they will be saved when the KLAB20D is switched off and on again exit setup mode by pressing F2 and then press F4. Note - setup mode will be exited automatically if no key is pressed for four seconds.

When in setup mode the LED's will illuminate as follows:



When making adjustments in setup mode:

The "mute" key will reset the parameter being adjusted

The "F1" key will reset all four parameters

The "F5" key will perform a factory reset including erasing any stored radio stations.

To store a radio station first choose a memory location, for example to store to location four, press F5 then four. This makes number four the current active memory location. Now press seek (F1 up or F3 down) until the tuner settles on the station you like. Now press and hold F4 until all 4 LED's illuminate, the current station will then be stored to location four. Repeat for each location (0 through 9) storing as desired.

The KLAB20D has two memory "maps", the current map and a map stored in permanent memory. When the unit is switched off the current map is lost and the permanent memory map will be loaded when the unit is switched back on. To write the current map to the permanent map press and hold F4 until all 4 LED's illuminate.

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:	10V 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

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

[KLAB20DFP]

3.5mm stereo jack to 3.5mm stereo jack front panel input cable 1.2M

[KLDE6]

Loudspeaker cable 42 strand OFC

[KBL31]

Additional remote control

[KRC1]

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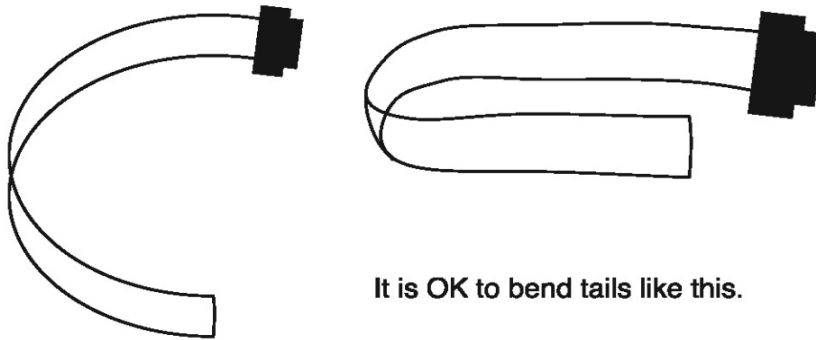
Old Hall Mills Business Park Little Eaton Derbyshire DE21 5EJ
Telephone 0870 990 9000 Fax (01332) 830551
<http://www.keene.co.uk>
<http://www.syncblaster.com>

Membranes.

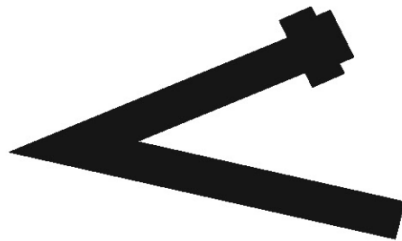
When locating the membranes ensure that they are in the correct position as removing them and replacing them can damage the circuits, LED's adhesive and can collapse the domes.

Do NOT click the keypad domes unless the overlay is on a flat surface. This also can collapse the domes.

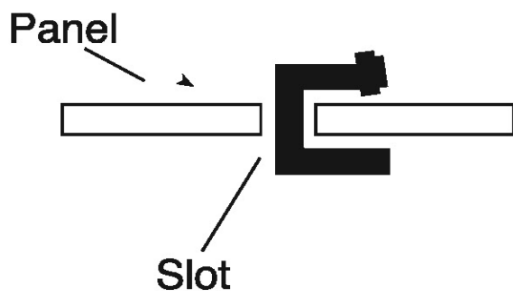
When handling membrane tails these are fragile and require care when locating into the electronic units. Hold the plastic connector housing to press in to correct position. This will reduce the possibility of creasing or folding the tails.



It is OK to bend tails like this.



DO NOT fold a tail like this.



DO NOT bend a tail like this, or pull hard against the panel.