Artist Series

400RB-IV Owner's Manual



400RB-IV



SK GALLIEN-KRUEGER

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Please read the Safety Information section on page 5 before continuing.



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT. ATTENTION: POUR EVITER LES CHOCS ELECTRIQUES, INRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

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^{*}All Features and specifications are subject to change without notice

 $^{**}This\ list\ is\ subject\ to\ change\ without\ notice.$

Congratulations

Your purchase of a new Gallien-Krueger 400RB-IV Series product is surely the result of much careful consideration on your part. For our part, we at Gallien-Krueger are pleased that you chose us, and are determined that you will be a satisfied customer. In choosing a 400RB-IV Series product, you own a unit with many unique features, which will allow you to create your own distinct sound.

To get the most out of your new purchase please take a few minutes to read through this manual. If you are in a hurry, we suggest you at least read through the Quick Start and Safety Information sections before setting up your new rig. This will help get you started and give you a few quick tips, but is not a substitute for reading the rest of the manual.

Your amplifier should have come with the following items, please check the contents of the box to ensure that you have everything.

Included with your 400RB-IV Head: 400RB-IV 1 2 Rack mount Ears with Hardware Power Cord 1 Owner's Manual 1 Warranty Card 1 Safety Instructions Sheet Included with your 400RB-IV Combo: 400RB/210 or 400RB/115) 1 Power Cord 1 Owner's Manual 1 Warranty Card 1 Safety Instructions Sheet

If your 400RB-IV Series amplifier or combo did not come with all the items listed above, or if you encounter problems while setting up your new equipment, please contact your local dealer, or us as soon as possible at:

Gallien-Krueger, Inc. 2234 Industrial Drive Stockton, CA 95206 phone: (209) 234-7300 fax: (209) 234-8420

Internet: www.gallien-krueger.com

Email: sales@gallien.com

We wish you a lifetime of good playing and remember to always have fun!



GK Philosophy

others have done them. I also have not been very interested in following the latest fad. I am a Stanford educated engineer who worked his way through school as a musician. Like all musicians, I have lugged amplifiers up stairways and into car trunks, always wondering why these things had to be so heavy, bulky, and hard to handle. As I am the principal innovator at **GK**, our products reflect my attitudes and life experiences. I don't model my designs after other manufacturer's products (as some of our competitors are proud of reciting). Instead, I believe new and old problems are best solved with new solutions. Having taken our own path, GK products enjoy a unique, unmatched sound, allowing the artist using them every opportunity to make an original statement.

I have never seen the point in doing things the way

Having supported my products for over thirty years, I have learned from the story they tell. **Gallien-Krueger** is a reflection of that story, and has a commitment to support that legacy. Just as the products I created thirty years ago are still telling their story, the products we create today will be talking to us tomorrow.

Nobeth Callin

Robert Gallien

Founder & President

Safety Information

Verify Line, Voltage and Amperage Before Use:

Your new 400RB-IV Series Bass Amp has been factory configured for use with:

- 120 Volt/60Hz 20 Amp circuit for USA & Canada.
- 230 Volt/50Hz 10 Amp circuit for Europe & Australia.
- 100 Volt/50Hz 20 Amp circuit for Japan.
- Proper AC circuit for all other countries.

Connecting the amplifier to a line with specifications other than indicated above can create a safety and fire hazard, and may damage the amplifier. If you have any questions about the voltage requirements for your specific model, or about the line voltage in your area, contact your dealer before plugging the unit into a wall outlet.

Verify AC Circuit Capacity Before Use:

The high power output of your amplifier may require heavy current draw under Full-Load conditions. To insure proper performance and avoid potential safety hazards, we recommend connection to line circuits with Amperage specified "as above". Connecting multiple amplifiers to the same circuit, or connecting the amplifier to the same circuit used by other heavy-power devices, such as high-wattage lights, may cause circuit breakers to trip. It is always a good idea to avoid using any audio equipment on the same AC circuit as equipment with motors, such as air conditioners or refrigerators. This will lessen to possibility of power variation and electrical start-up noise affecting your sound.

Warning: Do not disconnect or plug in the instrument/speaker cable with the amplifier power on. Be sure the amplifier unit is turned off before connecting to the speaker.

Do Not Use Extension Cords:

To avoid safety hazards, use only the power cord supplied with your unit. If a replacement cord is used, make certain that it is of consistent quality and gauge as the original. We do not recommend using extension cords with this product. As with all electrical devices, do not run power cords under rugs or carpets or place heavy objects on them. Damaged power cords should be replaced immediately with cords meeting factory specifications.

Handle The AC Power Cord Gently:

When disconnecting the power cord from an AC outlet, always pull the plug, never pull the cord. If you do not intend to use the amplifier for a considerable length of time, disconnect the plug from the AC outlet.

Mains Disconnect:

If the AC mains has to be completely disconnected, the plug/power cord is used as the mains disconnect device and shall remain readily operable.

Do Not Open The Amplifier Enclosure:

There are no user-serviceable components inside this product. Opening the amplifier enclosure may present a shock hazard, and modification to the product will void your warranty. If liquid enters the unit, or any metal object such as a paper clip, wire, or staple accidentally falls inside the enclosure, disconnect the unit from the AC power source immediately and consult an authorized service station.

Unpacking:

The carton and packing materials used in shipping your new amplifier were specially designed to cushion it from the shocks and vibration that occur during transport. We suggest that you save the carton and packing materials for use in shipping, in the event you move, or the amplifier needs repair.

Quick Start

The 400RB-IV is designed to be simple to operate. All controls have a well defined purpose and are well behaved. These directions will take you through the basics and give you a good start for setting up your sound.

1. Plug it in:

Set the power switch to Off and connect the supplied power cord, from the amplifier AC receptacle, to an AC power outlet of proper voltage and power rating (see safety information on page 5 for details).

2. Connect your cabinets:

Connect your speaker cabinets to the amplifier outputs marked 280W AMP ONLY. Be sure not to exceed the recommended speaker load below.

Maximum Recommended Speaker Loads:

One 4 Ohm or two 8 Ohm cabinets.

If you are using a RBH Series cabinet, set the crossover switch to Full Range.

3. Initial front panel control settings:

Set all EQ controls and the Boost control to 12 o'clock. The Voicing Filters should be turned all the way down to get a flat response. Set the Level and Master Volumes at 0. If you have a five string bass, push the button marked String Bass in.

4. Plug in your bass:

Using an instrument cable, connect your bass to the Input jack and press the power switch on. If you have active tone controls on your bass, turn all of the controls to the middle or flat position and turn the volume all the way up. If you have conventional, passive tone controls, turn all tone and volume controls all the way up.

5. Level and Master Volume settings:

Set the Master Volume to 12 o'clock. Turn the Input volume up as you play. Try not to turn it past 1 o'clock unless you want an overdrive effect. If the yellow clip light turns on, press the -14db button in. If it is still on, try turning the volume down on your bass.

At this point:

You should be hearing your bass quite well. You can use the Volume and Master to achieve a comfortable sound level. **Remember:** If you need more volume, turn up the Master control first.

Sound Tips

The 400RB-IV Series has several unique features which, if used properly, will obtain that sound you have been searching for.

The Equalizer:

The Equalizer is used to fine tune your sound. When adjusting it, do it just a little at a time. These are active circuits, and small changes can make a big difference in your sound. With a little experimentation you will find that this equalizer is very easy to use, never sounds weird and provides you with a large variety of great sounds, unique to GK.

Contour:

Increasing the Contour level will scoop out midrange frequencies while boosting the highs and lows. The sound, once again, is unique to GK and unavailable on any other Bass amp. Lower contour settings are recommended for midrange clarity at higher playing levels. For 800RB voicing, set the contour control either on 0 or 10 (Off, On on 800RB).

String Bass:

The way a Bass amp deals with the instrument low string is a critical part of its sound. In fact, a five string instrument requires an entirely different low end response than a four string instrument. No equalizer can make the necessary adjustments to accommodate both. However, the String Bass button on the 400RB-IV Series does just that. When it is out, the 400RB-IV is voiced like the 800RB. Push it in and the 400RB-IV is voiced for five string instruments. For some playing styles you may want it in, even with a four string instrument.

Boost/Master:

Turning up the Boost control, will add a little growl to your tone. This is an unmistakable GK trade mark sound, that you will grow to appreciate. Raising the Boost while lowering the Master will add more growl while keeping the sound level the same. Growl is actually a small amount of even order harmonic distortion, that sounds great through a woofer, but horrible through a horn. For most playing situations, the Master is set between 12 & 3 o'clock. The cleanest sound is obtained by setting the Master above 12 o'clock, and going above 3 o'clock for maximum power situations.

Direct Out:

The 400RB-IV provides a low noise, high quality balanced direct out for connection to PA and recording consoles. With the Pre/Post EQ switch set to "Pre" (Out), the direct output signal is fed directly from our low noise, high headroom, FET input stage providing a low noise output superior to external direct boxes and impedance transformers. In addition, this output is calibrated for 1.0V (0 dBV) output. With the switch in the Pre position, the Direct Output signal is only effected by the -14dB Pad and Tuning Mute controls. This allows you to adjust your tone and volume on stage without changing the Direct Output signal level and confusing your sound man.

Changing the Pre/Post EQ switch to "Post" (In), sends the "GK sound" and preamp response to the Direct Out jack. This gives you complete control over the Direct Out's tone and volume. In addition, a Ground (Gnd) Lift switch is included to remove hum and buzz when connecting to equipment powered by a different ground system.

Settings and Sounds: 400RB-IV

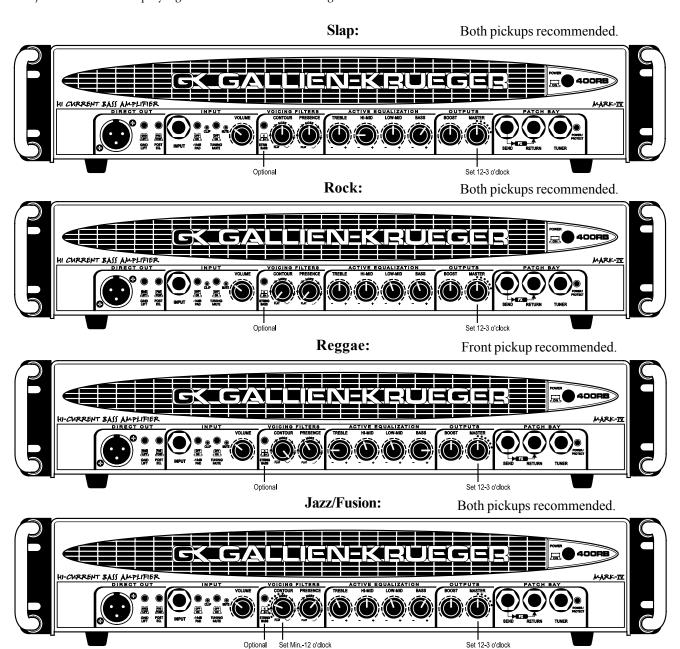
The 400RB-IV is versatile in its sound and tone. Below are a few suggested amp settings that can be used as starting points to define your own sound.

* Contour note:

At higher playing levels the contour should be set lower for mid-range clarity. To get 800RB voicing, the contour should be set to 0 or 10 only.

* Volume note:

Adjust volume before playing these recommended settings.



Installation and Maintenance

Installation:

- To insure proper operation and to avoid potential safety hazards, place the unit on a firm, level surface. When installing the unit in a rack, be sure the mounting hardware can support the amplifier's weight. To save space in your rack, the 400RB-IV's feet can be removed using a Philips head screw driver.
- Make certain that proper space is provided for ventilation. The 400RB-IV Series requires at least ½ inch clearance above for proper ventilation. Never block the fan vent holes in the top or front of the amplifier. If the amplifier will be installed in a rack or other enclosed area, make sure that there is sufficient air movement within the enclosure to allow proper cooling. Consult your dealer for more information.
- Avoid installation in extremely hot or cold locations, and areas that are exposed to direct sunlight, or near heating equipment.
- Avoid moist or humid locations.
- Remember, power amplifiers generate heat.

 The heat sink fins and ventilation slots that form part of the enclosure are specially designed to remove this heat. Placing other electronic equipment near these heat-dissipation systems may possibly affect the long-term reliability of both your amplifier and the other equipment.

Moving the Unit:

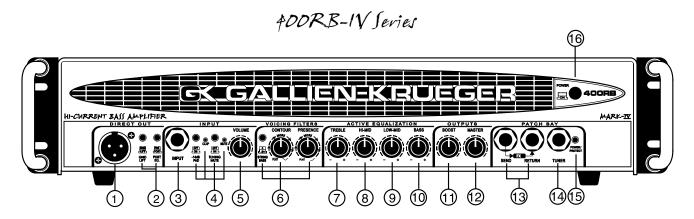
Before moving the unit, be certain to disconnect any interconnection cords with other components, and make sure that you disconnect the unit from the AC outlet.

Cleaning:

When the unit gets dirty, clean only with a dry cloth. Never use benzene, thinner, alcohol, or other volatile cleaning agents. Do not use abrasive cleaners, as they may damage the finish of metal parts. Avoid spraying insecticides near the unit.

Maintenance:

Your new amplifier is rugged. It was built to give you a lifetime of trouble-free operation, if it is operated in accordance with the instructions contained in this manual. The only maintenance required is cleaning. If you are going to move your amplifier around frequently, we recommend a road case to protect it from scratches and road wear.



Front Panel Controls

1-Balanced Direct Out:

An electronically balanced output, that you can run to your P.A. system.

2-Ground/Lift:

This switch disconnects the ground on the balanced, XLR output to eliminate hum and buzz when connnecting to equipment that is running on a different ground system.

Pre/Post EQ Button:

Selects the direct out signal before or after the EQ.

3-Input:

A standard ¼" input jack to plug in active or passive basses using a shielded cord.

4- -14dB Pad:

Input attenuator button. The button is generally left out, except in rare cases when the clip LED flashes. This switch should be pressed if the CLIP LED stays on continuously. It may be necessary to "pad" the input if you are using a bass with active electronics or very high output.

Clip LED:

LED lights yellow when the input stage is being over-driven. If -14dB PAD is pressed and clip LED still stays lit, turn down the volume on your bass.

Tuning Mute Button:

Set this switch to "On" when tuning up. No signal will be sent to the speakers, or the P.A. system.

Mute LED:

LED turns on when "Tuning Mute" is switched to the "ON" position.

5-Volume:

Sets pre-amp gain after the input stage. It is used in conjunction with the input pad, to optimize the amplifier's headroom.

6-Voicing Filters:

4/5 String Bass:

Setting this button to the "ON" position, voices the pre-amp for basses with "B" tuning (5 string bass). Leaving it in the "Out" position will voice the amp like the 800RB, for a 4 string bass.

Contour:

Drops the mid-range frequencies while boosting lows & highs.

Presence:

Adds edge and definition to higher frequencies.

Active Equalization:

7-Treble:

Boost and cut at 7 kHz ± 14 dB shelving type. Add or remove edge and definition.

8-High Mid:

Boost and cut at 1 kHz \pm 6dB/ -10dB, "Q Optimized," band pass type. Works on lower string harmonics, and effects the punch of your sound.

9-Low Mid:

Boost and cut at 250Hz \pm 6dB/-10dB, "Q Optimized," band pass type. Works on the main body of your sound.

10-Bass:

Boost and cut at 60Hz ± 10 dB, shelving type. Controls low end push.

11-Boost:

A post EQ gain stage using GIVE technology which adds "growl" as it is turned up.

12-Master:

Controls the output level of the amplifier.

13-Effects Loop:

Send and return jacks provided for the insertion of effects after the EQ, but before the boost section. Some effect units have gain, turning the BOOST down, will compensate for this.

14-Tuner Output

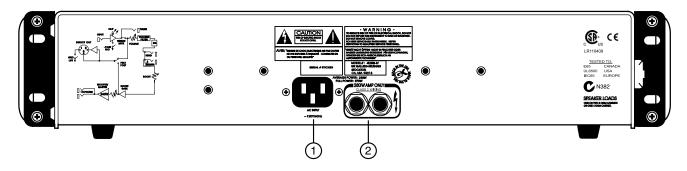
Output comes directly off the input stage and can be patched to a tuner with a shielded patch cord. This output is unaffected by the Tuning Mute Feature.

15-Power/Protect LED:

The LED is red at turn-on for five seconds while the amp powers up. The LED turns blue when the amp is ready to play. Should the amp experience a fault (over heat, over current) the amp will mute and this LED will switch to red until the condition is corrected. This LED turns off when the power switch is turned off.

16-Power Switch:

Turns the amplifier on or off. Should a problem occur during operation press this switch out first. This turns the amp off, but does not completely disconnect the power from the AC mains. The power LED should be off at this point.



Rear Panel Controls

1- AC Receptacle:

The power cord is detachable and plugs in here.

2- 280W/180W Amp Only:

280W/180W power amp output for Full-Range operation only. They deliver 280W/180W into 4 Ohms. Lower impedances should not be used. Higher impedances such as 8 Ohms, 16 Ohms, or No Load are acceptable. One 8 Ohm cabinet is okay. One 4 Ohm and one 8 Ohm is not recommended. No damage will result from operating the amplifier with the speakers disconnected.

Maximum Recommended Load:

One 4 Ohm or two 8 Ohm cabinets.

400RB-IV Series Combos

The 400RB-IV Series combos deliver the 400RB-IV's unique features and distinct sound by using a variety of internal speaker configurations, GK's RBH cabinet technology and a unique Lock N' Roll transport system.

Speaker Configurations:

400RB/115: One 8 Ohm 15" speaker.

400RB/210: Two 16 Ohm 10" speakers

(wired in parallel for an 8 Ohm equivalent load).

The 400RB-IV combo electronics are identical to the 400RB-IV head and are rated for the same maximum power output and speaker load (280W into 4 Ohms, and 180W into 8 Ohms). Maximum power is achieved by connecting one 8 Ohm extension cabinet (such as the 210RBH, 410RBH, or 115RBH) in addition to the combo's internal 8 Ohm speaker load. To drive more than one extension cabinet, the combo's internal speaker can be disconnected by unplugging the 1/4" jack connected to the combo's back panel. Below is a detailed description of the maximum loads the combos can drive.

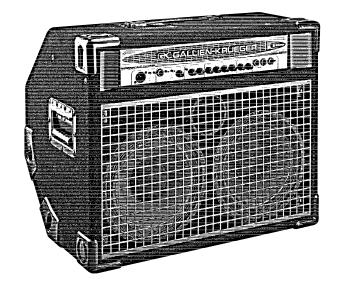
Maximum recommended load with the internal speaker connected:

One 8 Ohm cabinet.

Maximum recommended load with the internal speaker disconnected:

One 4 Ohm, or Two 8 Ohm cabinets.

The 400RB-IV Series combos are designed for maximum setup versatility to accommodate a variety of playing situations. For practicing and close monitoring situations, tilt the cabinet back into its "Rock Back" position. For stronger bass and audience projection, leave the combo in the upright posit





Tech Talk

Characteristics of the 400RB-IV:

The 400RB-IV Series is a flexible, state-of-the-art Bass Amplifier, designed to deliver maximum performance, and be simple to operate. This is accomplished through a few, very important features:

- Extremely high current power supply and power amp circuitry, gets the sound out of your head.
- Four, Bass specific bands of active equalization for precise tone control.
- Three voicing filters for shaping and customizing your sound.
- Balanced direct output with level control eliminates need for a direct box.
- Continuously variable fan cooling.

Current Output & Bass Response:

When a power amplifier is pushing several speaker cones, and a high-power transient like a string slap comes along, the amp has to tap into a large power reserve to maintain cone control. If the amplifier doesn't have this ability, the sound is unresponsive and less out front. The amp loses it's punch and feel at higher playing levels. Instead of responding to your every command, the amplifier simply cuts those transients off, leaving you with the feeling that something is missing in your sound.

Since most amplifiers have limited output current capacity, they need "current limiting circuits" to protect against self-destruction. High-power transients trigger these circuits, which rob the amplifier of it's ability to control speaker cones. This creates a mushy, unresponsive feel to your sound.

The 400RB-IV Series has extremely high current capacity, so it doesn't need current limiting circuits for over-load protection.

There is nothing in the 400RB-IV Series power amp to come between you and your sound except faithful, raw power.

Equalization:

Standard tone controls and graphic equalizers give you plenty of variation, but they don't provide what the instrument really needs. The fact is, graphic equalizers are intended for room equalization. The equalization in Gallien-Krueger amplifiers reflects 30 years of continuous development and refinement. The GK equalizer is unique to the industry, it's not just a normal four band equalizer, each section is a special circuit optimized to perform a Bass specific job in its range of operation. These sections are wired in Series, so they add to one another creating a tremendously flexible equalizer, that doesn't sound weird at any setting. Now it is possible to obtain the sound you desire.

Tech Talk

Voicing Filters:

Voicing filters are used to completely re-voice the amplifier. In the case of the Contour and String Bass controls, the effect is dramatic.

The Contour is used to completely revoice the amplifier. The Contour control tunes between two different shaping circuits, with greatly different response. With the control all the way up, the low end is slightly boosted, the mids are dropped and the high end is pushed up. This is only found in GK amplifiers.

The way a Bass amp deals with the instrument low string is a critical part of it's sound. In fact, a five string instrument requires an entirely different low end response than a four string instrument. No equalizer can make the necessary adjustments to accommodate both, however the String Bass button on the 400RB-IV Series does just that. When it is out, the 400RB-IV is voiced like the 800RB. Push it in and the 400RB-IV is voiced for five string instruments. For some playing styles you may want it in, even with a four string instrument.

Low Noise Operation:

The 400RB-IV Series uses a high gain, high headroom, low noise input stage. It has such a large dynamic range (60v p-p) that very few instruments can overdrive it. Even most basses with "active" electronics do not need the input attenuator to be set. The benefit to you is less hiss from your horn, and over all, much less noise.

"G.I.V.E." Technology:

As in all GK pre-amps, the 400RB-IV Series pre-amp incorporates what we call G.I.V.E (Gate Induced Valve Effect) Technology. We use field effect devices with the gate biased in a way that emphasizes the optimum harmonic content of the signal. Working in concert with our unique Four Band Active Equalizer, and three stage Voicing Filter Section, G.I.V.E. technology produces a consistently pleasing bass tone.

Cool Running = Reliability:

The 400RB-IV Series uses a "dual rail power supply" that generates about half the heat of conventional amplifiers. Low output signals run off a low voltage supply, and high level signals run off a high voltage supply. This keeps the amp running a lot cooler and makes it much more reliable. To cool the amp when its being driven hard, we've designed a temperature sensitive fan cooling system. When the amp is under a light load, the fan is off or running at a low speed, reducing fan noise. As the amp works harder, the fan speed increases to keep everything cool.

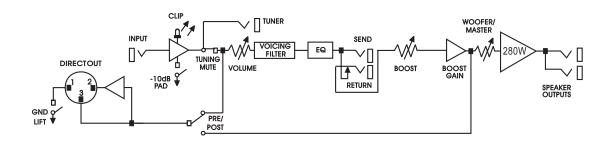
Smart Protection Circuitry:

The 400RB-IV's protection circuitry constantly monitors for unsafe operating conditions such as short circuits, miss-wired speaker cables, blown speakers, improper ventilation, and incorrect speaker configurations. In addition, protection is provided during power up/down. If the 400RB-IV senses any unsafe operating conditions, the output signal is immediately muted and the power light changes from Blue to Red. The amplifier will remain muted until the fault is removed. If the protection circuit activates while playing, turn the amplifier off and check the amplifier speaker output connections. Be sure that you are not exceeding the maximum recommend load described in this manual. If the problem persists, contact GK directly for technical advice.

In Closing:

You should now have a thorough understanding of how your new 400RB-IV Series amplifier works and what advantages it can offer you in getting "your" sound. We thank you for reading the Owner's Manual and wish you the best of times! Please send us your comments via www.gallien-krueger.com or email us at sales@gallien.com.

Block Diagram



400RB-IV Series Specifications:

Output Power:

400RB-IV: 180W @ 8 Ohms 280W @ 4 Ohms

Input Section:

Maximum Input Level 0.6V Rms
With -10dB pad 1.6V Rms
Input Impedance 1M Ohm
Send output impedance 220 Ohm
Return input impedance 50k Ohm
Tuner Output Impedance 10k Ohm
Direct Output Impedance 500 Ohms

Equalizer:

 Bass
 ±10db @ 60Hz

 Lo-Mid
 +6db/-10db @ 250Hz

 Hi-Mid
 +6db/-10db @ 1kHz

 Treble
 ±14db @ 7kHz

Voicing Filters:

Presence

String Bass Button +11db@20Hz Contour +2db@50Hz / -10db@500Hz /

+3db@7kHz +9db@10kHz

Noise -90db referenced to 700W/480W,

"A" weighted

Cooling: Continuously Variable-

Speed Fan

Amplifier Protection:

Full short circuit, thermal,& RF protection. Stable into reactive and mismatched loads. Five second muted warm-up.

Dimensions (HxWxD):

3 1/2" x 17" x 8 ¼" (2 Rack Spaces)

Weight:

15lbs

Power Requirements:

U.S.A./Canada 120V/60Hz

700RB-II: 570W(full power), 210W(average power)

Europe 230V/50Hz

700RB-II: 570W(full power), 210W(average power)

Japan 100V/50Hz

700RB-II: 570W(full power), 210W(average power)



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