

Owner's Guide  
for the

**CRATE**

**BFX-220H**  
**Bass Amplifier**

*with Digital Signal Processing*



MUSICIAN MADE IN THE U.S.A. by

**CRATE**

## Congratulations!

You are now the proud owner of the innovative Crate BFX-220H Bass Amp with Digital Signal Processing. The BFX-220H offers a wide selection of Digital effects designed especially for the bass guitar, each of which are easily accessed with the simple turn of a control knob. (No programmer's degree required!)

Like all Crate products, your BFX-220H is designed by musicians and built using only the best components. Extensive testing at many stages of its production, including a final "audition" by a skilled musician, insures that your BFX-220H bass amp is the best it can be.

In order to get the best possible performance, please read this manual before you use the amplifier.

And **thank you** for choosing



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	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
<small>WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE. TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</small>		

	<b>PRECAUCION</b> RIESGO DE CORRIENTAZO NO ABRA	
<small>PRECAUCION: PARA REDUCIR EL RIESGO DE INCENDIOS O DESCARGAS ELECTRICAS, NO PERMITA QUE ESTE APARATO QUEDE EXPUESTO A LA LLUVIA O LA HUMEDAD. PARA DISMINUIR EL RIESGO DE CORRIENTAZO, NO ABRA LA CUBIERTA. NO HAY PIEZAS ADENTRO QUE EL USUARIO PUEDA REPARAR DE JE TODO MANTENIMIENTO A LOS TECNICOS CALIFICADOS.</small>		

	<b>ATTENTION</b> RISQUE D'ELECTROCUTION NE PAS OUVRIR	
<small>ATTENTION: PROTEGEZ CET APPAREIL DE LA PLUIE ET DE L'HUMIDITE AFIN D'EVITER TOUT RISQUE D'INCENDIE OU D'ELECTROCUTION. POUR REDUIRE D'ELECTROCUTION NE PAS ENLEVER LE COUVERCLE. AUCUNE PIECE INTERNE N'EST REPARABLE PAR L'UTILISATEUR. POUR TOUTE REPARATION, S'ADRESSEZ A UN TECHNICIEN QUALIFIE.</small>		

### IMPORTANT SAFETY INSTRUCTIONS

- READ, FOLLOW, HEED, AND KEEP ALL INSTRUCTIONS AND WARNINGS.
- DO NOT OPERATE NEAR ANY HEAT SOURCE AND DO NOT BLOCK ANY VENTILATION OPENINGS ON THIS APPARATUS. FOR PROPER OPERATION, THIS UNIT REQUIRES 3" (75CM) OF WELL VENTILATED SPACE AROUND HEATSINKS AND OTHER AIR FLOW PROVISIONS IN THE CABINET.
- DO NOT USE THIS APPARATUS NEAR SPLASHING, FALLING, SPRAYING, OR STANDING LIQUIDS.
- CLEAN ONLY WITH LINT-FREE DAMP CLOTH AND DO NOT USE CLEANING AGENTS.
- ONLY CONNECT POWER CORD TO A POLARIZED, SAFETY GROUNDED OUTLET WIRED TO CURRENT ELECTRICAL CODES AND COMPATIBLE WITH VOLTAGE, POWER, AND FREQUENCY REQUIREMENTS STATED ON THE REAR PANEL OF THE APPARATUS.
- PROTECT THE POWER CORD FROM DAMAGE DUE TO BEING WALKED ON, PINCHED, OR STRAINED.
- UNPLUG THE APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME.
- ONLY USE ATTACHMENTS, ACCESSORIES, STANDS, OR BRACKETS SPECIFIED BY THE MANUFACTURER FOR SAFE OPERATION AND TO AVOID INJURY.
- THIS APPARATUS DOES NOT OPERATE NORMALLY AND REQUIRES SERVICE WITH ANY PHYSICAL DAMAGE FROM IMPACT OR ANY EXPOSURE TO MOISTURE.
- SERVICE MUST BE PERFORMED BY QUALIFIED PERSONNEL.
- OUR AMPLIFIERS ARE CAPABLE OF PRODUCING HIGH SOUND PRESSURE LEVELS. CONTINUED EXPOSURE TO HIGH SOUND PRESSURE LEVELS CAN CAUSE PERMANENT HEARING IMPAIRMENT OR LOSS. USER CAUTION IS ADVISED AND EAR PROTECTION IS RECOMMENDED IF UNIT IS OPERATED AT HIGH VOLUME.

EXPLANATION OF GRAPHICAL SYMBOLS:  
EXPLICACION DE SIMBOLOS GRAFICOS:  
EXPLICATION DES SYMBOLES GRAPHIQUES:

= "DANGEROUS VOLTAGE"  
"VOLTAJE PELIGROSO"  
"DANGER HAUTE TENSION"

= "IT IS NECESSARY FOR THE USER TO REFER TO THE INSTRUCTION MANUAL"  
"ES NECESARIO QUE EL USUARIO SE REFIERA AL MANUAL DE INSTRUCCIONES."  
"REFERREZ-VOUS AU MANUAL D'UTILISATION"

## **Introduction:**

Crate's new BFX-220H Bass Amp with Digital Signal Processing is a feature-packed, professional-strength powerhouse which can deliver incredible bass sounds. Rugged construction, reliable American craftsmanship and solid state electronics add up to create one very roadworthy, stage-ready piece of gear.

The BFX-220H packs solid state performance and easily accessible digital effects into a compact head unit, housed in a rugged Tolex® covered cabinet. Its side-mounted handle and heavy duty rubber feet on two sides (not just the bottom, but also on the end you set it down on in real life situations) increase its value to those performers who are always on the go.

The BFX-220H delivers 220 watts into 4 ohms and 150 watts into 8 ohms. Several of the amplifier's outstanding features are listed below.

## **Features:**

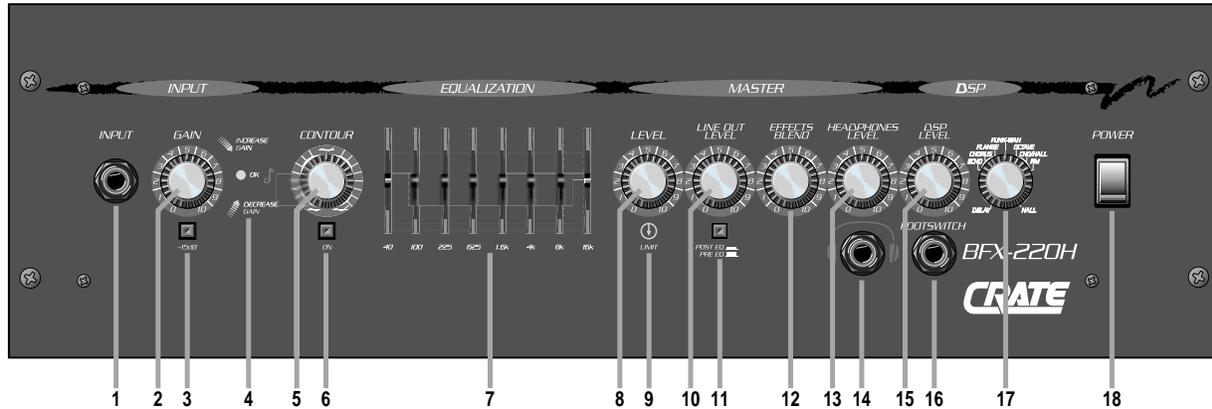
- Solid state circuitry for reliable service and incredible tones
- Crate's APM (Automatic Power Maximizer) limiter circuit for the most output without distortion
- Variable input gain control with -15dB pad switch and 3 input icon LEDs for the best match between your bass and the amplifier
- Switchable Contour control
- 8-band graphic equalizer for optimum tone control
- Digital Signal Processing – nine digital effects designed for the bass guitar, with level control – can be turned on and off by means of the supplied single button footswitch
- Balanced line out jack with level control and pre/post-EQ switch
- Headphones jack with level control for practicing in private
- Effects loop for noise-free connection of your favorite processors and effects
- Rugged Tolex® covered cabinet for durability, nickel and chrome plated hardware for high cosmetic appeal
- Crate's exclusive 5-year warranty (U.S. only – see your dealer in other areas for warranty information)

## **Important Safeguards and Precautions:**

All Crate products are designed for continuous safe operation, as long as common sense is used and steps are taken to help avoid certain problems. Abiding by the following rules can help prevent damage to your amplifier, yourself, and others.

- The amplifier is equipped with a three-pronged AC power cord. To reduce the risk of electrical shock, **NEVER** remove or otherwise attempt to defeat the ground pin of the power cord.
- Connect the amplifier **ONLY** to a properly grounded AC outlet of the proper voltage for your amp.
- Avoid sudden temperature extremes, rain and moisture. Also, avoid sudden and intense impact. (If the unit has been subjected to any of the preceding abuses, have it looked at by an authorized service center.)
- **NEVER** set the amplifier on a support that might give out under its weight.
- Always keep the total speaker impedance at or above the rated load.
- Unplug the amplifier before cleaning it. **NEVER** spray liquid cleaners onto the amplifier. Wipe it with a slightly dampened, lint-free cloth to remove dirt and film.
- Do not use the amplifier if it has sustained damage to the chassis, controls, or power cord. Refer the unit to an authorized service center for inspection.
- Amplifiers capable of producing high volume levels are also capable of inflicting permanent hearing loss or damage, if the exposure to such levels is prolonged. Such damage is progressive and irreversible! Consider using quality hearing protection devices.

## The Front Panel:



**1. INPUT:** Use this jack to connect your instrument to the amplifier by means of a shielded signal cable.

**2. GAIN:** Use this control to adjust the input signal level. For the best results, the “OK” LED (#4) should illuminate when playing at normal levels. If the “Decrease Gain” LED illuminates with the Gain control at low levels, depress the -15dB switch (#3) and adjust the Gain control accordingly.

**3. -15dB SWITCH:** This switch, when depressed, attenuates the input signal by 15dB. If your bass has active electronics or “hot” pickups, or if the “Decrease Gain” LED (#4) illuminates with the Gain control (#2) at low levels, depress this switch.

**4. LEVEL LEDS:** Use these LEDs to properly set the Gain control (#2) by following the above instructions until the “OK” LED illuminates when playing at normal levels.

**5. CONTOUR:** Use this control to adjust the tone of your instrument. This control is active only when the Contour On/Off switch (#6) is depressed.

**6. CONTOUR ON/OFF:** This switch, when depressed, activates the Contour control (#5).

**7. GRAPHIC EQUALIZER:** Use these eight sliders to adjust the frequencies indicated beneath each one to custom-tailor your sound or to compensate for room acoustics.

**8. MASTER LEVEL:** Use this control to adjust the output level of the amplifier. This control affects the signal level at the Headphones jack (#14), the Preamp Out jack (#19), and the Speaker jacks (#22).

**9. LIMIT LED:** This LED illuminates whenever the internal limit circuitry is activated. The limiter prevents the output from sounding distorted even at high volume levels. Under normal playing conditions, this LED will flash occasionally. If this LED remains illuminated, reduce the Master Level control (#8) until the LED flashes.

**10. LINE OUT LEVEL:** Use this control to adjust the signal level at the Balanced Line Out jack (#23).

**11. POST EQ/PRE EQ SWITCH:** This switch, when depressed, sends a post-EQ signal to the Balanced Line Out jack (#23). The post-EQ signal is affected by the settings of the Gain control (#2), the Contour control (#5), the Graphic Equalizer (#7), and the DSP controls (#15, #17). With the switch in the out position, the signal at the Line Out jack is pre-EQ and is not affected by any of the aforementioned controls.

**12. EFFECTS BLEND:** Use this control to adjust the amount of effect applied to the signal from the external effects loop (#24, #25). With the control fully counter clockwise, no effects are applied to the signal. As you rotate the control clockwise the amount of effects applied to the signal increases. Setting the control to the 12 o’clock position (“5”) gives a 50/50 blend of dry signal and effects.

**13. HEADPHONES LEVEL:** Use this control to adjust the signal level at the Headphones jack (#14).

**14. HEADPHONES:** Use this jack to connect a pair of stereo headphones, for listening in private. The signal at this jack is post Gain,

post EQ, and post Effects. The signal level at this jack is adjusted by the Headphones Level control (#13). Using the Headphones jack does not affect the signal at the Speaker jacks (#22). This jack may also be used to send a signal to a tuning device.

**15. DSP LEVEL:** Use this control to adjust the level of the Digital Signal Processing applied to the signal.

**16. FOOTSWITCH:** Use this jack to connect the supplied single button footswitch for remote on/off control of the DSP effects.

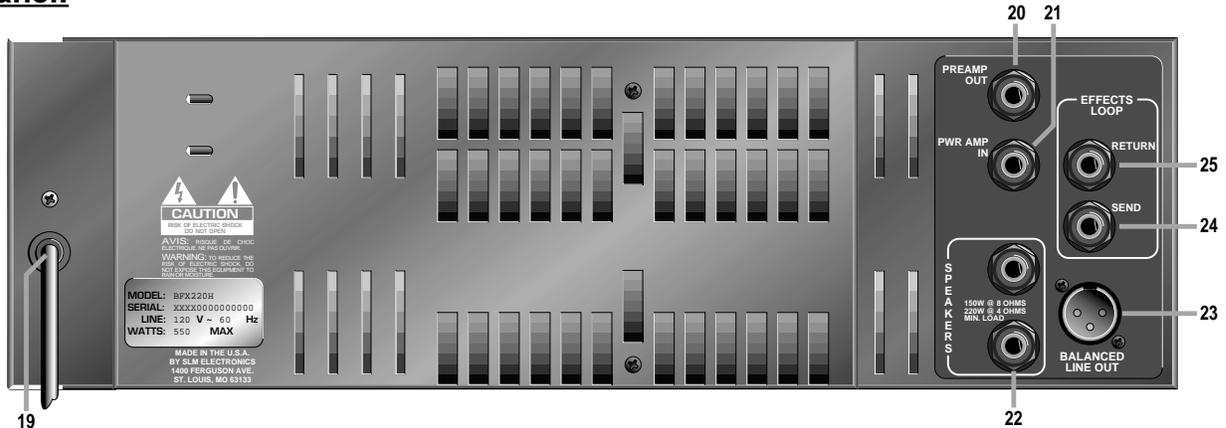
**17. DSP SELECTOR:** Use this control to select the type of digital effect(s) applied to the signal. The effects are described as follows:

- DELAY:** Slapback delay effect
- ECHO:** Long delay effect with regeneration
- CHORUS:** Moderate chorus effect
- FLANGE:** Light flange effect
- FUNK-WAH:** Touch-sensitive wah-wah (“T-Wah”) effect
- OCTAVE:** Adds a secondary signal one octave lower than the original signal
- CHO/HALL:** Moderate chorus effect with a large hall reverb effect
- RM:** Small room reverb effect
- HALL:** Large hall reverb effect

**18. POWER:** Use this switch to turn the amplifier on (top of the switch depressed) and off (bottom of the switch depressed). This switch illuminates when the amplifier is turned on.

# CRATE BFX-220H Bass Amplifier with Digital Signal Processing

## The Rear Panel:



**19. AC LINE CORD:** This grounded power cord is to be plugged into a grounded power outlet, wired to current electric codes and compatible with voltage, power, and frequency requirements stated on the rear panel. **Do not attempt to defeat the safety ground connection.**

**20. PREAMP OUT:** Use this 1/4" jack to send a preamplified, line level signal to an external amplifier, powered monitor, recording console, mixing board or effects processor. The signal at this jack is unbalanced: tip = signal +, sleeve = signal -.

**21. POWER AMP IN:** Use this jack to send a line level signal into the BFX-220H's internal power amplifier. When a connection is made into this jack, the signal from the input jack is interrupted.

**22. SPEAKERS:** Use these jacks to connect the amplifier to your speaker cabinet(s) using heavy duty speaker cables. These jacks are wired in parallel. Avoid speaker combinations which result in impedance loads below 4 ohms. The following chart shows acceptable parallel load combinations:

CAB IMP.	# CABS	TOTAL IMP.
8 ohms	2	4 ohms
16 ohms	2	8 ohms
16 ohms	4	4 ohms

**23. BALANCED LINE OUT:** Use this XLR jack to send a preamplified, line level signal to an external amplifier, powered monitor, recording console, mixing board or

effects processor. The signal at this jack is balanced, and its level is controlled by the Line Out Level control (#10, front panel). The signal may be post or pre-EQ, depending on the Post-EQ/Pre-EQ switch (#11, front panel).

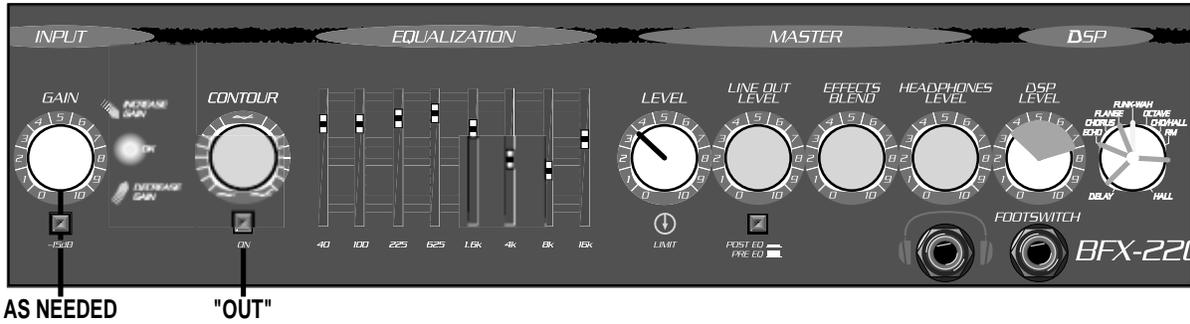
**24. EFFECTS LOOP SEND:** Use this 1/4" jack to send an unbalanced line level signal to the input jack of an external effects processor.

**25. EFFECTS LOOP RETURN:** Use this 1/4" jack to connect the signal from the output jack of an external effects device into the amplifier.

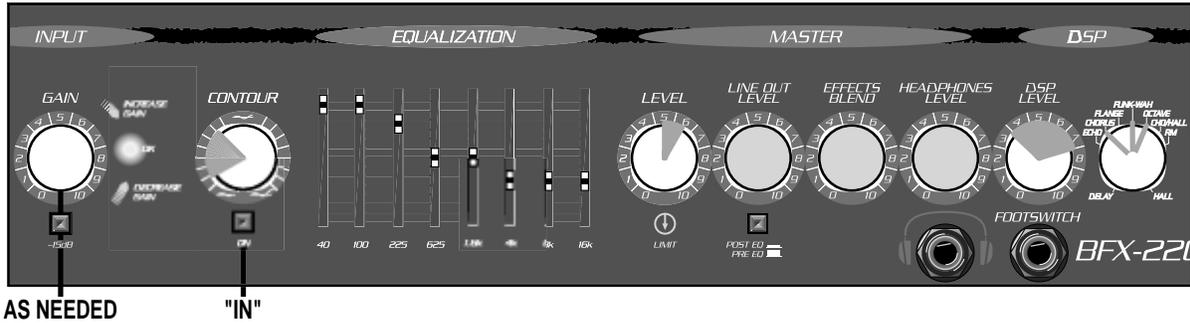
# CRATE *BFX-220H Bass Amplifier with Digital Signal Processing*

## Some Suggested Settings:

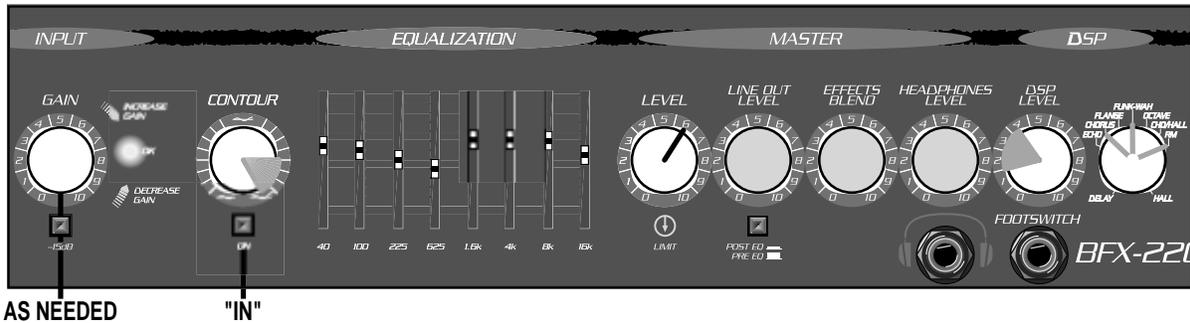
### ROCK:



### JAZZ:



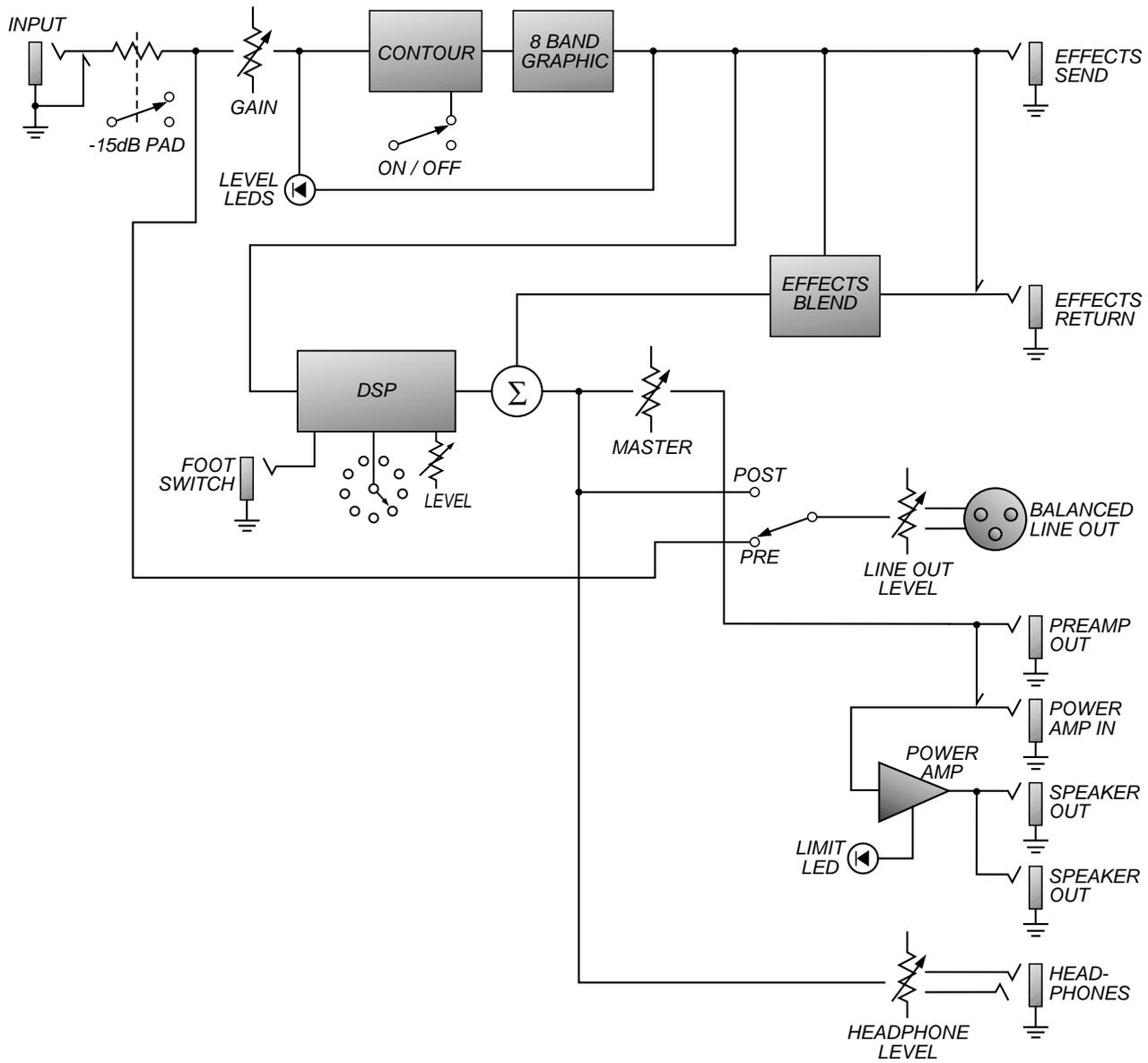
### COUNTRY:



### FUNK:



## System Block Diagram:



# **CRATE** *BFX-220H Bass Amplifier with Digital Signal Processing*

## **Technical Specifications:**

<b>Maximum Input Signal Level Accepted</b>	17 volts peak to peak (-15dB switch depressed)
<b>Input Impedance</b>	500k ohms (-15dB switch out), 75k ohms (-15dB switch depressed)
<b>Signal to Noise Ratio</b>	75dB typical
<b>Output Power Rating</b>	160 watts RMS @ < 5% THD, 8 ohm load, 120VAC line 220 watts RMS @ < 5% THD, 4 ohm load, 120VAC line
<b>Gain @ 1kHz</b>	67dB with EQ flat, Contour off
<b>EQ Section</b>	20dB range ( $\pm 10$ dB) @ 40Hz, 100Hz, 225Hz, 625Hz, 1.6kHz, 4kHz, 8kHz and 16kHz
<b>Power Requirements</b>	110-120VAC, 60 Hz 250VA 110-115VAC, 50/60 Hz 250VA 230VAC, 50/60 Hz 250VA
<b>Size and Weight</b>	7-1/8" H x 19-1/2" W x 12" D, 30 lbs

### **Declaration Of Conformity**

#34, Effective 01-01-2001

**Manufacturer's Name:** SLM Electronics  
**Production Facility:** 11880 Borman Drive, St. Louis, MO 63146, USA  
**Production Facility:** 700 Hwy 202 W, Yellville, AR 72687, USA  
**Shipping Facility:** 1400 Ferguson Ave., St. Louis, MO 63133, USA  
**Office Facility:** 1400 Ferguson Ave., St. Louis, MO 63133, USA

**Product Type:** Audio Amplifier

**Complies with Standards:**  
**LVD:** 92/31/EEC, 93/68/EEC, & 73/23/EWG  
**Safety:** EN60065  
**EMC:** EN55013, EN55020, EN55022, EN61000-3-2,  
& EN61000-3-3

Supplementary information provided by your local Sales & Services Office or:  
SLM Electronics - R & D Engineering  
1901 Congressional Drive, St Louis, MO 63146, USA  
Tel.: 314-569-0141, Fax: 314-569-0175

*Crate continually develops new products, as well as improves existing ones. For this reason, specifications and information in this manual are subject to change without notice.*



[www.crateamps.com](http://www.crateamps.com)

