RFX200S

Three-Channel Guitar Amplifier with Stereo Digital Signal Processing

User's Guide

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Declaration of Conformity

Manufacturer’s Name: SLM Electronics
Corporate Headquarters: 1901 Congressional Drive, St. Louis, Missouri 63146
Primary Production Facility: 700 Hwy 202 W, Yellville, Arkansas, 72687

Product Type: Audio Amplifier

Products meet the regulations for compliance marking under:
ETL standards UL6500, UL60065, or UL813
CSA standards E60065 or C22.2 No.1-M90
CE safety standard EN60065
CE EMC standards EN55103 or EN55013 and EN61000
C-tick designation Level 2, ABN #56748810738, ARBN# N222
KETI standard K60065 (limited model approval)

Compliance Support Contact: SLM Electronics, Attn: R&D Compliance Engineer
1901 Congressional Drive, St Louis, Missouri, 63146 • Tel.: 314-569-0141, Fax: 314-569-0175

Congratulations!

You are now the proud owner of the Crate RFX200S three-channel guitar amplifier with Stereo Digital Signal Processing (DSP). This rugged amplifier combines outstanding features with serious clean and distorted sounds. Dual DSP controls provide 15 “Must Have” effects and 15 Delay effects which can be combined for a wide variety of sounds. The Save/Tap button allows you to manually set the tempo of many of the effects and to save new DSP presets in the amplifier’s non-volatile memory. A separate Reverb control adds even more to the array of effects. Channel switching and DSP may be controlled by means of a footswitch, which also allows access to two DSP presets on each of the three channels. Stereo and Mono Effects Loops allow you to connect additional effects for even greater flexibility. The electronic tuner (with a Mute switch for silent tuning) lets you get tuned and stay in tune any time the amplifier is on.

Like all Crate products, your RFX200S amplifier is designed by musicians, and built using only the best components. Extensive testing confirms that this amplifier is the absolute best it can be.

In order to get the most out of your new amplifier, we strongly suggest that you read the information contained in this guide before you begin playing.

And **thank you** for choosing CRATE.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

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.

PRECAUCION
RIESGO DE CORRIENTAZO
NO ABRA

PRECAUCION: PARA REDUCIR EL RIESGO DE INCENDIOS O DESCARGAS ELECTRICAS, NO PERMITA QUE ESTE APARATO QUEDE EXPUESTO A LA LLUVIA O LA HUMEDAD. PARA DISMINUOIR EL RIESGO DE CORRIENTAZO, NO ABRA LA CUBIERTA. NO HAY PIEZAS ADENTRO QUE EL USARIO PUEDO REPARAR DEJE TODO MANTENIMIENTO A LOS TECHNICOS CALIFICADOS.

ATTENTION
RISQUE D’ELECTROCUTION
NE PAS OUVRIR

ATTENTION: PROTÉGEZ CET APPAREIL DE LA PLUIE ET DE L’HUMIDITÉ AFIN D’EVITER TOUT RISQUE D’INCENDIE OU D’ÉLECTROCUTION. POUR REDUIRE D’ELECTROCUTION NE PAS ENLEVER LE COUVERCLE. AUCUNE PIECE INTERNE N’EST REPRABLE PAR L’UTILISATEUR. POUR TOUTE REPARATION, S’ADRESSER A UN TECHNICIEN QUALIFIE.

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” (75mm) 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.

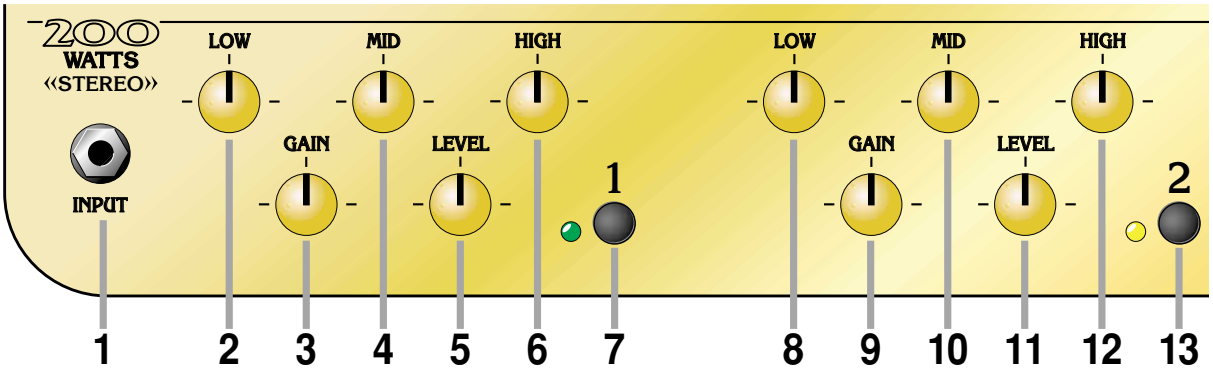
- WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK OR FIRE, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.
- SERVICE MUST BE PERFORMED BY QUALIFIED PERSONNEL.
- OUR AMPLIFIERS ARE CAPABLE OF PRODUCING HIGH SOUND PRESSURE LEVELS. CONTINUED EXPOSURE TO HIGH SOUND PRESSURE LEVELS CAN CAUSE PERMANENT HEARING IMPAIRMENT OR LOSS. USER CAUTION IS ADVISED AND EAR PROTECTION IS RECOMMENDED IF UNIT IS OPERATED AT HIGH VOLUME.
- WARNING: THIS UNIT REQUIRES A SAFETY GROUNDED OUTLET WIRED TO CURRENT ELECTRIC CODES HAVING THE LINE SUPPLY VOLTAGE, POWER, AND FREQUENCY IDENTIFIED ON THE REAR OF THE UNIT. THE OUTLET MUST REMAIN ACCESSIBLE TO DISCONNECT THE UNIT IF A FAULT SHOULD ARISE WHILE IN USE. THIS UNIT SHOULD BE UNPLUGGED WHEN NOT IN USE.

EXPLANATION OF GRAPHICAL SYMBOLS:
EXPLICACION DE SIMBOLOS GRAFICOS:
EXPLICATION DES SYMBÔLES 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”

The Top Panel:



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

CHANNEL 1 - Featuring a low gain FlexWave circuit for clean sounds or sounds with mild distortion:

2: LOW: Use this control to adjust the low frequency level of Channel 1.

3: GAIN: Use this control to adjust the amount of distortion produced by Channel 1.

4: MID: Use this control to adjust the midrange frequency level of Channel 1.

5: LEVEL: Use this control to adjust the output level of Channel 1.

6: HIGH: Use this control to adjust the high frequency level of Channel 1.

7: CHANNEL 1 SELECT: This switch, when depressed, selects Channel 1 as the active channel. The adjacent LED illuminates when Channel 1 is active.

CHANNEL 2 - Featuring a medium gain FlexWave circuit for moderate distortion and crunch:

8: LOW: Use this control to adjust the low frequency level of Channel 2.

9: GAIN: Use this control to adjust the amount of distortion produced by Channel 2.

10: MID: Use this control to adjust the midrange frequency level of Channel 2.

11: LEVEL: Use this control to adjust the output level of Channel 2.

12: HIGH: Use this control to adjust the high frequency level of Channel 2.

13: CHANNEL 2 SELECT: This switch, when depressed, selects Channel 2 as the active channel. The adjacent LED illuminates when Channel 2 is active.

CHANNEL 3 - Featuring a high gain FlexWave circuit for extreme distortion and sustain:

14: LOW: Use this control to adjust the low frequency level of Channel 3.

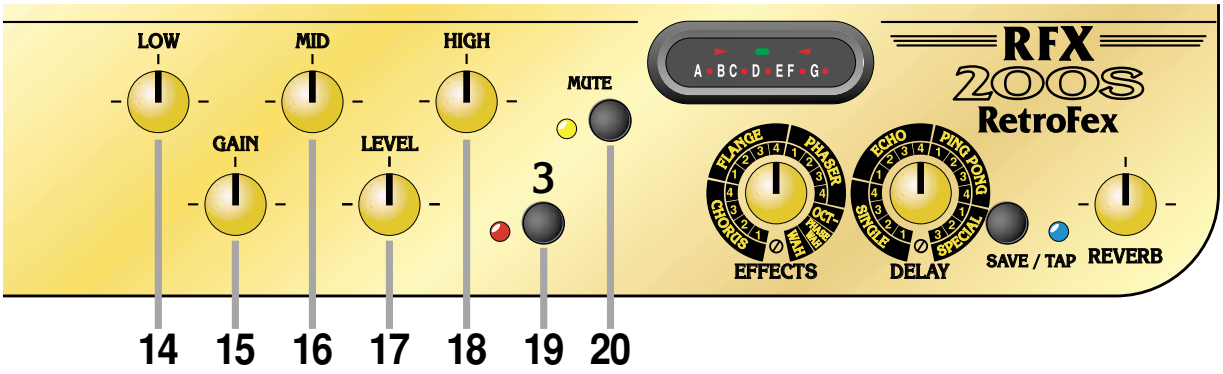
15: GAIN: Use this control to adjust the amount of distortion produced by Channel 3.

16: MID: Use this control to adjust the midrange frequency level of Channel 3.

17: LEVEL: Use this control to adjust the output level of Channel 3.

18: HIGH: Use this control to adjust the high frequency level of Channel 3.

19: CHANNEL 3 SELECT: This switch, when depressed, selects Channel 3 as the active channel. The adjacent LED illuminates when Channel 3 is active.



20: MUTE: This switch, when depressed, mutes the output signal at the speaker jacks and the effects loops, allowing you to silently tune or switch instruments. The adjacent LED illuminates when the Mute function is active.

21: TUNER: The electronic tuner is active whenever the amplifier is turned on, providing constant, "real time" tuning. The bottom row of LEDs indicate which note (string) is being tuned. The top row of LEDs provides directional queues to facilitate quick and precise tuning of your instrument. The indicated note (string) is properly tuned when only the center LED is illuminated.

22. EFFECTS: Use this control to select one of the fifteen digital effects. Complete information about the DSP effects is on page 7.

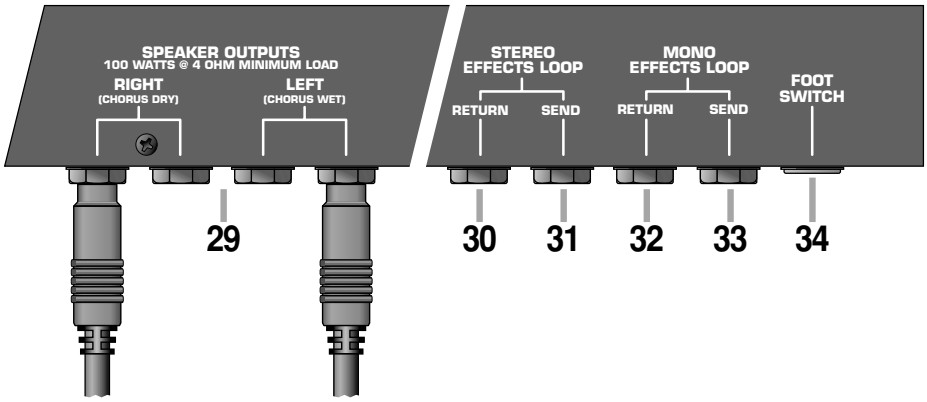
23. DELAY: Use this control to select one of the fifteen digital delay effects. Complete information about the DSP effects is on page 7.

24: SAVE/TAP: Use this pushbutton to set the tempo of many of the effects by tapping the button repeatedly in time with the desired tempo. The Save/Tap button is also used to save DSP presets and to restore the factory default DSP settings. Additional information about the Save/Tap button is on pages 7 and 8.

25: SAVE/TAP LED: This LED flashes in time with the tempo set by the Save/Tap button (#4) and serves as a status indicator for certain DSP activities (see page 8).

26: REVERB: Use this control to adjust the amount of the digital reverb effect. In its fully counter clockwise position the signal is "dry" (without any reverb). As you rotate the control clockwise the amount of reverb increases. The Reverb setting may be saved as a channel preset - see page 8.

The Bottom Panel:



27: POWER (not shown): Use this switch to turn the amplifier on (top of the switch depressed) and off (bottom) of the switch depressed. The switch illuminates when the power is on.

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

29: SPEAKER OUTPUTS: Use these jacks to connect the amplifier to the speakers. The RFX200S is shipped from the factory with a cable from each channel connected to the speakers within the cabinet. Additional speakers may be connected providing the four ohm minimum load rating for these jacks is observed. When using the stereo Chorus effect the right channel is dry and the left channel is detuned (wet). Each channel will provide 70 watts RMS into an eight ohm load and 100 watts RMS into a four ohm load.

30: STEREO EFFECTS LOOP RETURN: When using a stereo external effects processor, connect this jack to the output jack of the effect by means of a shielded three conductor signal cable terminated with a stereo (R/T/S) 1/4" connector.

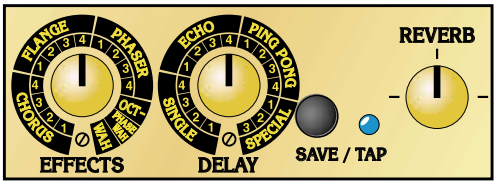
31: STEREO EFFECTS LOOP SEND: When using a stereo external effects processor, connect this jack to the input jack of the effect by means of a shielded three conductor signal cable terminated with a stereo (R/T/S) 1/4" connector.

32: MONO EFFECTS LOOP RETURN: When using a mono external effects processor, connect this jack to the output jack of the effect by means of a shielded signal cable.

33: MONO EFFECTS LOOP SEND: When using a mono external effects processor, connect this jack to the input jack of the effect by means of a shielded signal cable.

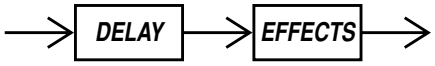
34: FOOTSWITCH: Use this jack to connect the footswitch cable (5-conductor midi cable) to the four-button footswitch (supplied). This allows you to remotely switch between the channels, set tap tempos, save new presets, and access a second set of DSP presets. (See page 9 for additional information.)

The DSP Section:

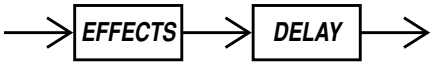


The RFX200S features DSP controls for Effects, Delay and Reverb. Complete information about the Effects and Delay controls is given below. The Effects control selects the "pitch modified" and wah effects. Many of these effects have their speed controlled by the Save/Tap button. The Delay control selects the delay or echo effects. All of these effects have their speed controlled by the Save/Tap button. Additional information is provided on pages 5 and 10.

SIGNAL PATH FOR SPECIAL DELAY EFFECTS:



SIGNAL PATH FOR ALL OTHER EFFECTS:



EFFECTS:

NAME	DESCRIPTION	SAVE/TAP BUTTON CONTROLS:
Chorus 1	stereo chorus w/low depth	speed: 1 cycle/tap - period: .05 - 1 second
Chorus 2	stereo chorus w/medium low depth	speed: 1 cycle/tap - period: .05 - 1 second
Chorus 3	stereo chorus w/medium high depth	speed: 1 cycle/tap - period: .05 - 1 second
Chorus 4	stereo chorus w/high depth	speed: 1 cycle/tap - period: .05 - 1 second
Flange 1	flanger w/low depth	speed: 4 cycles/tap - period: .05 - 1 second
Flange 2	flanger w/medium low depth	speed: 4 cycles/tap - period: .05 - 1 second
Flange 3	flanger w/medium high depth	speed: 4 cycles/tap - period: .05 - 1 second
Flange 4	flanger w/high depth	speed: 4 cycles/tap - period: .05 - 1 second
Phaser 1	phase shift w/low feedback	speed: 2 cycles/tap - period: .05 - 1 second
Phaser 2	phase shift w/medium low feedback	speed: 2 cycles/tap - period: .05 - 1 second
Phaser 3	phase shift w/medium high feedback	speed: 2 cycles/tap - period: .05 - 1 second
Phaser 4	phase shift w/high feedback	speed: 2 cycles/tap - period: .05 - 1 second
Oct-	adds signal one octave below original	n/a
Phase Wah	medium phase w/touch sensitive wah	n/a
Wah	touch sensitive wah wah	n/a
⊘	bypass (dry signal - no effect)	n/a

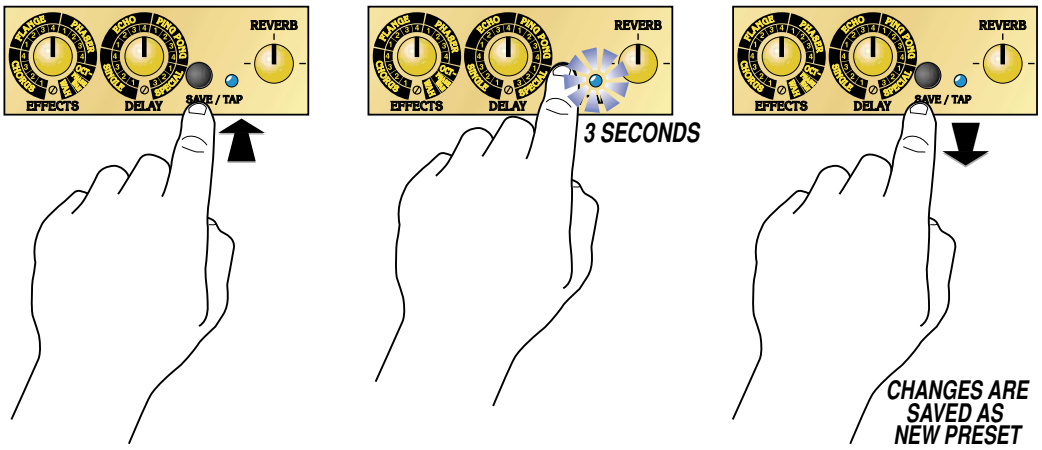
DELAY:

NAME	DESCRIPTION	SAVE/TAP BUTTON CONTROLS:
Single 1	single delay w/low level	delay time: .05 - 1 sec
Single 2	single delay w/medium level	delay time: .05 - 1 sec
Single 3	single delay w/high level	delay time: .05 - 1 sec
Single 4	single delay w/maximum level	delay time: .05 - 1 sec
Echo 1	echo delay w/low level	delay time: .05 - 1 sec
Echo 2	echo delay w/medium level	delay time: .05 - 1 sec
Echo 3	echo delay w/high level	delay time: .05 - 1 sec
Echo 4	echo delay w/maximum level	delay time: .05 - 1 sec
Ping Pong 1	stereo panning delay w/low level	delay time: .05 - 1 sec
Ping Pong 2	stereo panning delay w/medium level	delay time: .05 - 1 sec
Ping Pong 3	stereo panning delay w/high level	delay time: .05 - 1 sec
Ping Pong 4	stereo panning delay w/maximum level	delay time: .05 - 1 sec
Special 1	low echo delay w/effect on echo only	delay time: .05 - 1 sec
Special 2	medium echo delay w/effect on echo only	delay time: .05 - 1 sec
Special 3	high echo delay w/effect on echo only	delay time: .05 - 1 sec
⊘	bypass (dry signal - no effect)	n/a

Storing Your Own Presets:

Each channel of the RFX200S has two factory assigned DSP presets, as shown on pages 10 and 11. No matter what the settings of the DSP controls, the preset is recalled when a channel is selected. You may change the DSP settings by rotating the DSP controls - these changes will remain active until a different channel is selected, but will not be there for later use unless they are saved. To save a new DSP preset to a channel, first make the desired DSP changes. Then press and hold the Save/Tap button for about three seconds. The Save/Tap LED will flash through three quick sequences, indicating the preset was saved. The new preset is stored for that channel and will remain in memory until a new preset is stored for that channel or the factory presets are restored.

We recommend making copies of page 14 of this guide for the purpose of writing down your own presets.



Restoring the Factory Presets:

The factory assigned DSP presets may be restored, erasing any changes you have made. Turn the amplifier off. Press and hold the Save/Tap button as you turn the amplifier on. The Save/Tap LED will flash through two quick sequences, indicating the factory presets have been restored.

More About the Save/Tap Button:

The Save/Tap button is used to set the tempo of an effect by pressing it twice within a one second time frame. The time between the two taps sets the timing of the effect. If the Save/Tap button is pressed an odd number of times (once, three times, etc.), the timing will default to the maximum one second time period.

The Effects and the Delays may each have a different tap speed. The default “target” for the Save/Tap button is the Delay control. To select the Effects control as the tap button’s target, rotate the Effects control. The Save/Tap tempo function will automatically revert back to the Delay control 16 seconds after the Effects control is rotated, or when the tap speed was last changed for the Effects control.

NOTE: In most cases, it is usually more pleasing to the ear to set a slower tap speed for the HI effects and a faster tap speed for the LO effects.

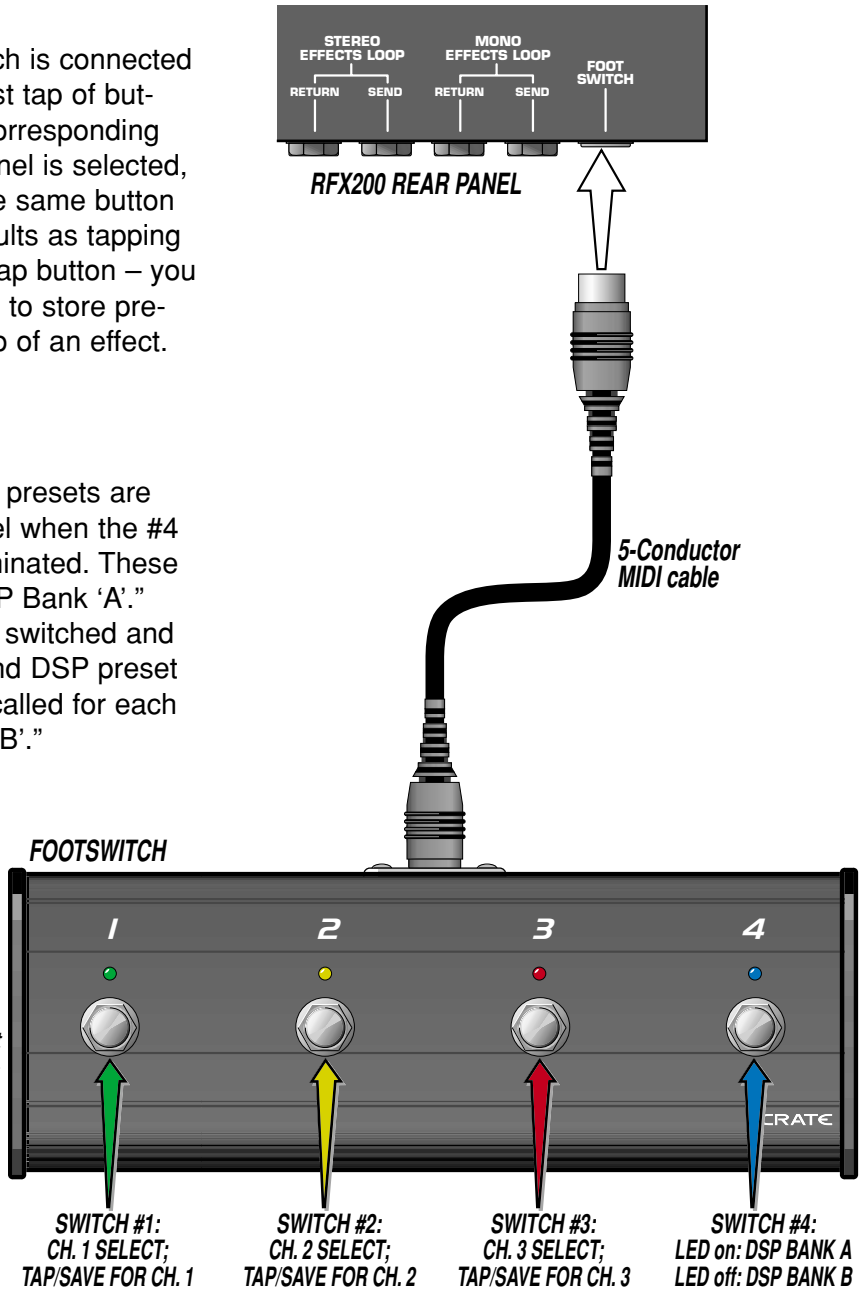
Using the Footswitch:

The special Crate four-button footswitch supplied with the RFX200S performs a variety of functions. The footswitch allows remote channel selection, remote Tap/Save for each channel, and allows access to an additional DSP preset for each channel of the amplifier. Use only the supplied Crate four-button momentary footswitch with the RFX200S. A standard 5-wire midi cable (supplied) may be used to connect the footswitch to the amplifier.

When the footswitch is connected to the amplifier, the first tap of buttons 1 - 3 select the corresponding channel. Once a channel is selected, consequent taps of the same button produce the same results as tapping the front panel Save/Tap button – you can use the footswitch to store presets and set the tempo of an effect. (See page 8.)

The "original" DSP presets are active for each channel when the #4 footswitch LED is illuminated. These are referred to as "DSP Bank 'A'." When the #4 button is switched and the LED is off, a second DSP preset may be stored and recalled for each channel - "DSP Bank 'B'."

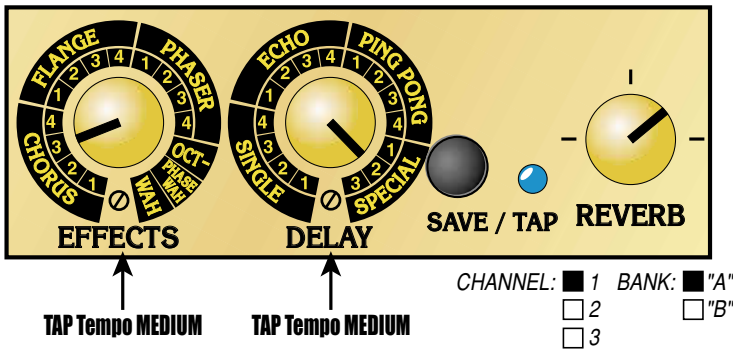
NOTE: DSP Bank "B" presets are only accessible when the footswitch is connected to the amplifier. When the footswitch is not connected, only DSP Bank "A" is accessible.



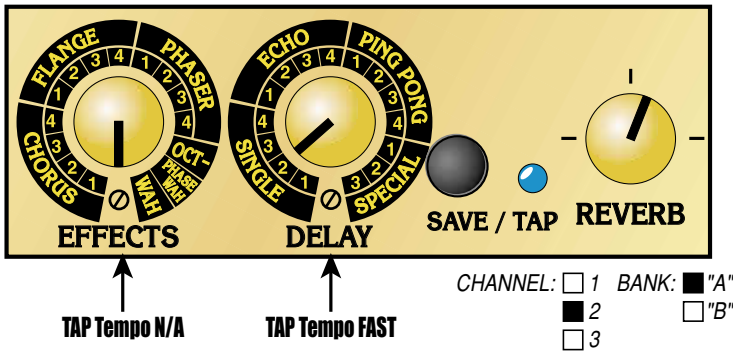
DSP Factory Presets:

The RFX200S Factory Presets for the DSP section are as follows:

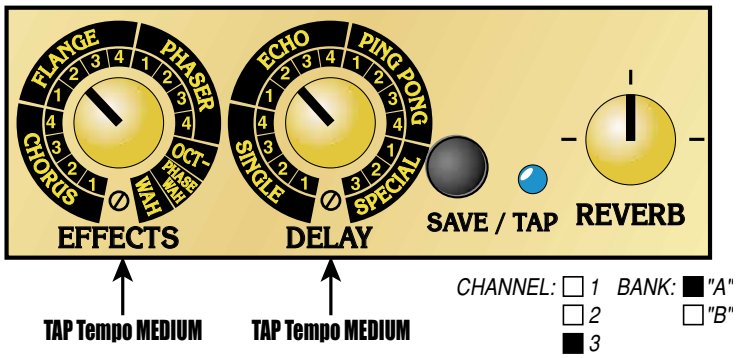
Factory Preset 1: Clean w/Chorus, Delay, Reverb



Factory Preset 2: Rhythm w/Slapback Delay



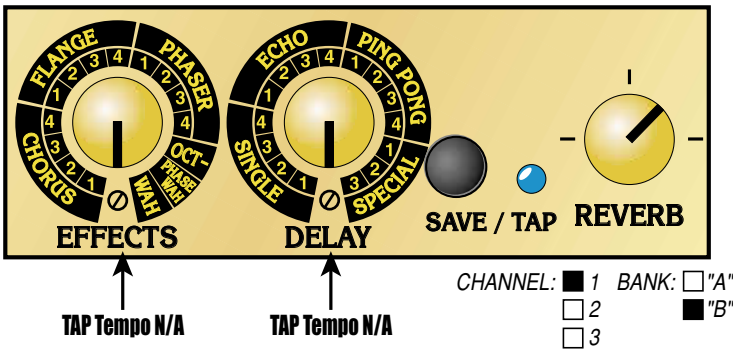
Factory Preset 3: Solo w/Flange, Delay, Reverb



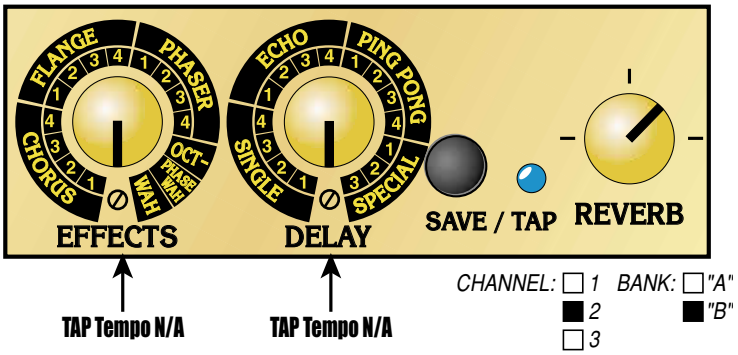
DSP Factory Presets:

The RFX200S Factory Presets for the DSP section are as follows:

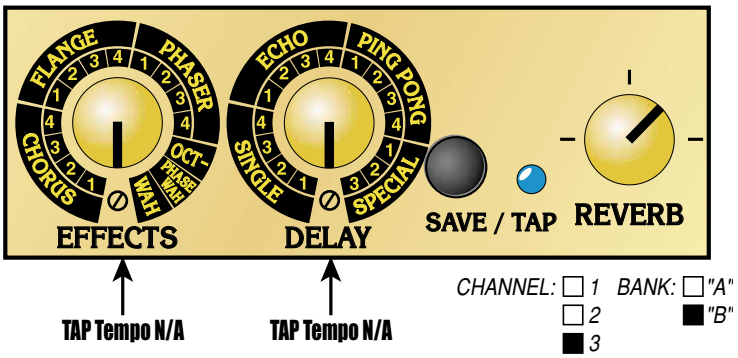
Factory Preset 4: Clean w/Reverb



Factory Preset 5: Rhythm w/Reverb

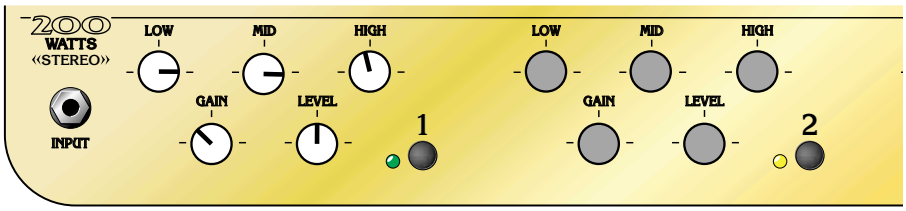


Factory Preset 6: Solo w/Reverb

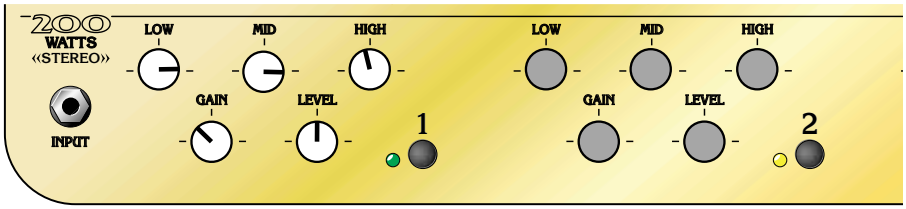


Suggested Settings:

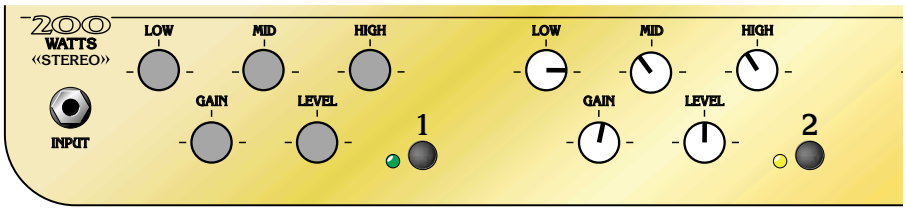
"Oceanic"
Clean with Vibrato, Delay, & Reverb



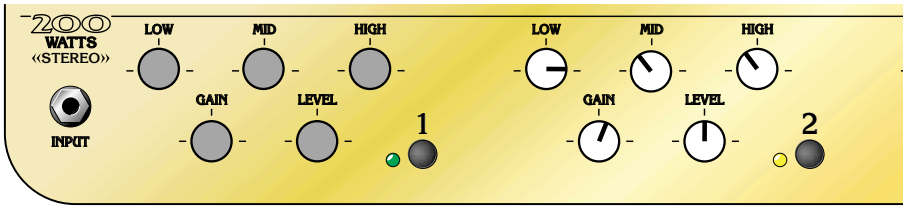
"Super Funk"
Clean with Wah, Delay, & Reverb



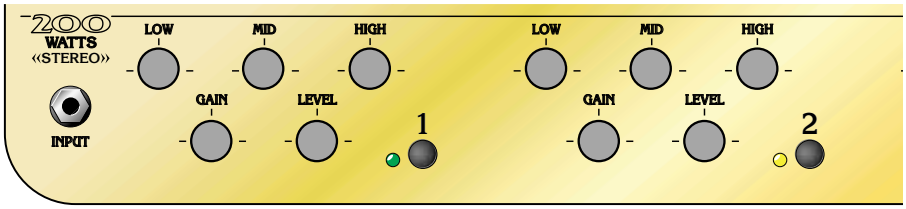
"Arena"
Rhythm with Reverb & Delay



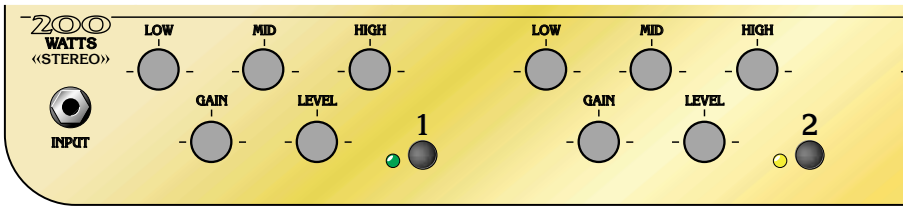
"Haze Faze"
Rhythm with Phase & Reverb



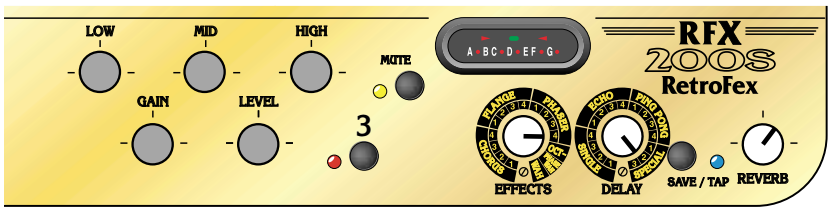
"Solo Wah"
Solo with Wah, Delay & Reverb



"Octanator"
Solo with Octave & Reverb

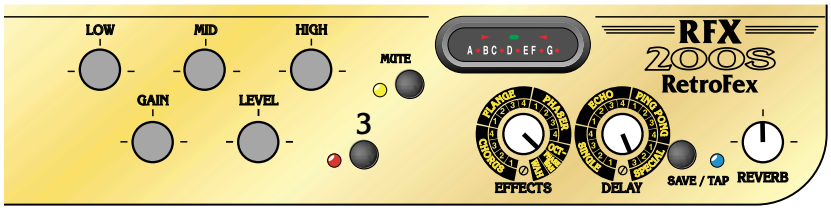


Suggested Settings:



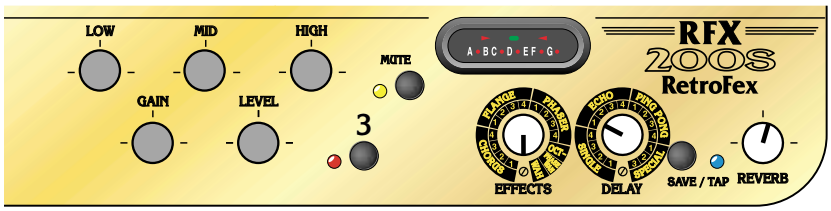
EFFECTS TAP Tempo: MEDIUM

DELAY TAP Tempo: MEDIUM



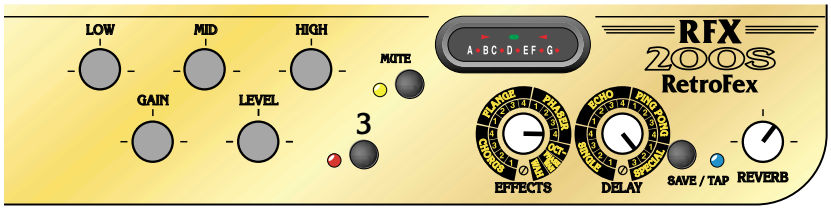
EFFECTS TAP Tempo: N/A

DELAY TAP Tempo: FAST



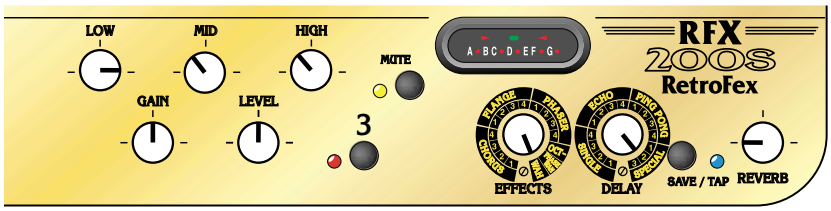
EFFECTS TAP Tempo: N/A

DELAY TAP Tempo: MEDIUM



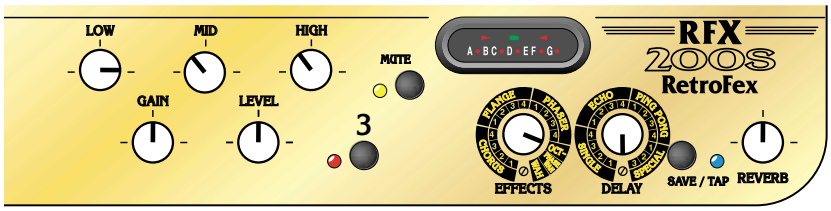
EFFECTS TAP Tempo: MEDIUM

DELAY TAP Tempo: N/A



EFFECTS TAP Tempo: N/A

DELAY TAP Tempo: N/A



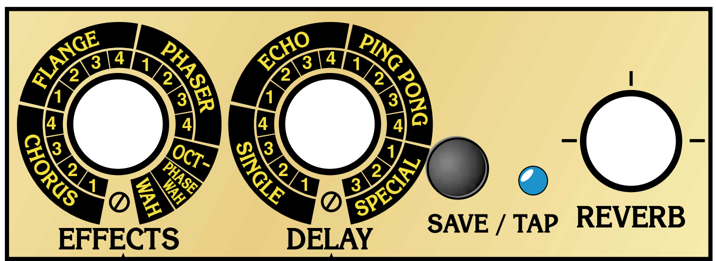
EFFECTS TAP Tempo: N/A

DELAY TAP Tempo: N/A

DSP "Fill in the Blanks" (User Settings):

Copy this page to fill in your own DSP Presets!

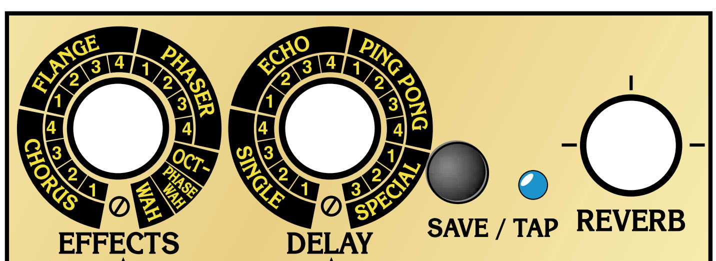
*User Preset:*________________________________



TAP Tempo ______ TAP Tempo ______

CHANNEL: ☐ 1 ☐ 2 ☐ 3 BANK: ☐ "A" ☐ "B"

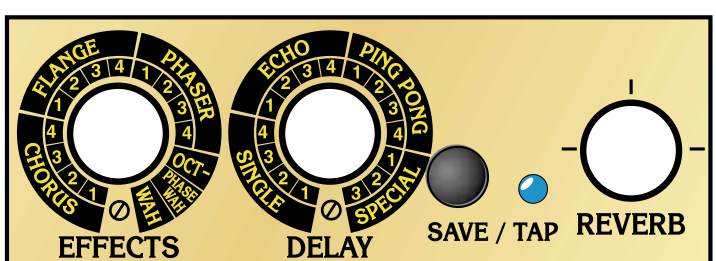
*User Preset:*________________________________



TAP Tempo ______ TAP Tempo ______

CHANNEL: ☐ 1 ☐ 2 ☐ 3 BANK: ☐ "A" ☐ "B"

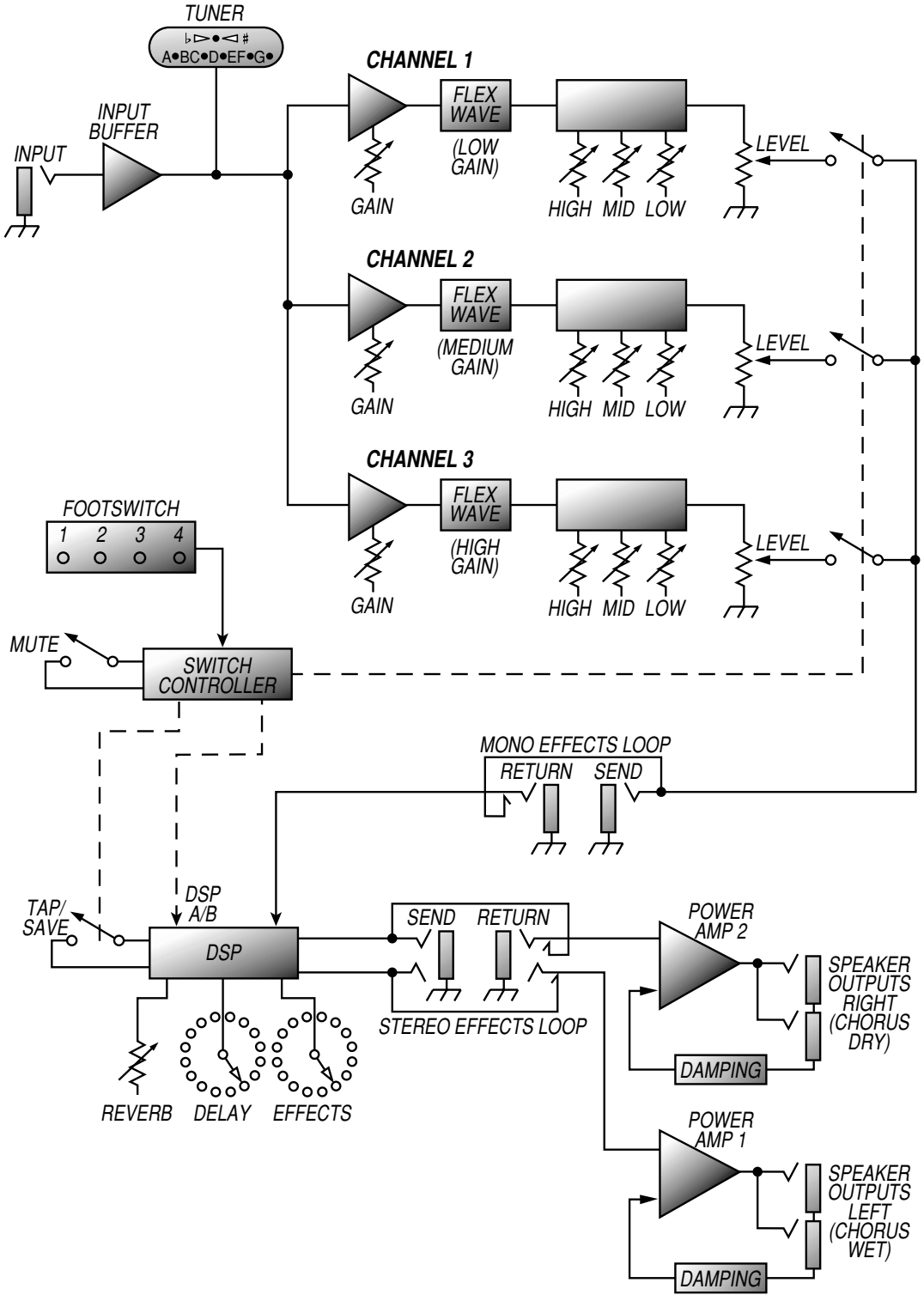
*User Preset:*________________________________



TAP Tempo ______ TAP Tempo ______

CHANNEL: ☐ 1 ☐ 2 ☐ 3 BANK: ☐ "A" ☐ "B"

System Block Diagram:



RFX200S TECHNICAL SPECIFICATIONS:

Output Power Rating		70W per channel @5% THD, 8 ohm load 100W per channel @5% THD, 4 ohm load
Speaker Size and Rating		(2) Celestion Seventy 80W 12” 8 ohm
Input Impedance		470kΩ
Total System Gain	Ch 1	74dB, all controls @10
	Ch 2	88dB, all controls @10
	Ch 3	103dB, all controls @10
Maximum Input Signal Accepted		5 volts peak-to-peak
Channel 1	Low Control	26dB range @ 70Hz
	Mid Control	10dB range @ 900Hz
	High Control	20dB range @ 10kHz
Channel 2	Low Control	26dB range @ 70Hz
	Mid Control	10dB range @ 900Hz
	High Control	20dB range @ 10kHz
Channel 3	Low Control	17dB range @ 100Hz
	Mid Control	16dB range @ 1kHz
	High Control	12dB range @ 7kHz
Power Requirements		120 VAC, 60Hz, 95VA 100/115VAC, 50/60Hz, 95VA; 230VAC, 50/60Hz, 95VA
Size and Weight		21” H 27-3/4” W x 11-1/4” D, 45 lbs.

The RFX200S is covered with a durable Tolex material: wipe it clean with a lint-free cloth. Never spray cleaning agents onto the cabinet. Avoid abrasive cleansers which would damage the finish.

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

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