

General Description

Dedicated to the needs of the Stick® musician, the SP 13 Stick Preamplifier is a full-featured package specifically suited for instruments with two pickups. The SP 13 provides two signal processing paths: both optimized for passive Stick pickups. These paths feature very high input impedance for extended low bass response. Additionally, either channel accepts dynamic pickups or line-level outputs from outboard preamps. A convenient front panel slide switch allows choice of which pickup is wired to the tip or the ring of the stereo ¼" input jack. Handy pickup Gain trim controls feature large openings for quick changes using guitar picks, fingernails or coins. And separate pickup Overload indicators make gain set-up easy.

Each pickup signal path contains an Invert switch, an adjustable Low Cut filter, a 7-band graphic equalizer, a Pan control and a separate Level amplifier, all logically arranged along the front panel using smooth-acting oil-damped sliders for the ultimate in convenience and graphical feedback. The Invert switch allows the user to invert the phase of each pickup relative to the other. The sliding Low Cut filter helps eliminate troublesome thumping, rumbling, rubbing and other unwanted infrasonic frequencies. The graphic equalizers give

you separate timbre control over each individual pickup. The Pan and Level controls mix both pickups into one smooth stereo signal ready to drive the Send/Return effects loop, or the in-line Inserts. Two pair of high-current cross-coupled balanced stereo line drivers, with Mono switch on the rear panel, complete the processing chain. Choose between the stereo ¼" *line-level outs* for amplifier feed or the stereo XLR *mic-level outs* for direct console patching, or use them both.

A powerful Headphone amplifier and Master Mute switch allow private auditioning and practice. The separate Tuner Output routes both Inputs to a mono output for easy tuning of both pickups with a single tuning device. When an auxiliary output is necessary, the separate unbalanced Aux Output with Level control perfectly satisfies the need. An additional Expander Input allows a second stereo processed signal to be returned to the Main Outputs. This means that each pickup can be processed independently and mixed together for stereo applications.

The SP 13 Acoustic Preamplifier is all you ever dreamed of for perfect control and integration of your Chapman Stick (years of practice not included).

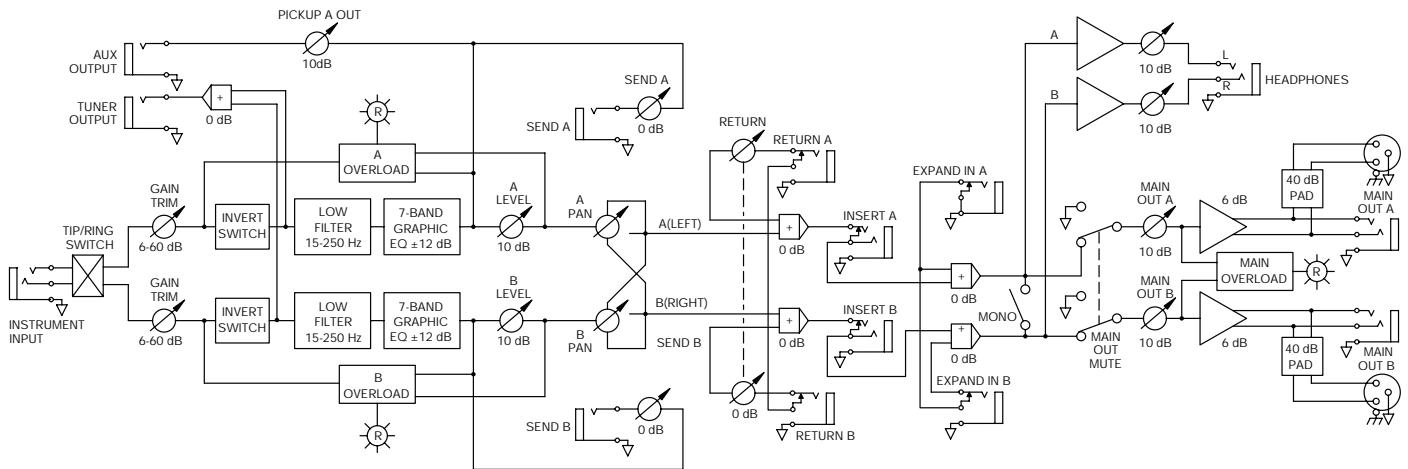
Features

- Stick® preamp for instruments using dual pickups
- Signal processing for each pickup:
 - Low-cut filter 15-250 Hz
 - 7-band graphic equalizer
 - Polarity Invert switch
- Level & Pan controls
- Stereo Send/Return and Insert loops
- Switchable tip/ring Input wiring
- Direct Tuner and Aux Outputs
- Main Output Muting with indicator
- Main Output Stereo/Mono switch
- Fully balanced Mic/Line level Outputs
- Stereo headphone amplifier
- UL/CSA/CE and 100/120/230 VAC Remote Power Supplies



Parameter	Specification	Limit	Units	Conditions/Comments
Frequency Response	15-40 kHz	+0/-3	dB	Low Cut set minimum
THD+Noise	0.03	.01	%	+4 dBu, 20-20 kHz
Equivalent Input Noise (EIN)	115	2	dB	Instrument In to Send, 60 dB gain
Signal-to-Noise Ratio	re +4 dBu, 20 kHz BW			
.....Return In to Main Out	88 / 81	2	dB	Unity/Max gain
.....Instrument In to Main Out	81	2	dB	Max gain except PU gains 50%
Crosstalk	greater than 70 at 2 kHz	min	dB	50 dB at 20 kHz
Input Impedances:				
.....A&B Pickups	1.74 meg	min	ohms	1 kHz
.....All Others	20k	1%	ohms	Insert, Return & Expand
Maximum Input Levels				
.....Instrument Pickups	+12	1	dBu	(3.09 Vrms)
.....All Others	+22	1	dBu	(9.76 Vrms)
7-Band EQ: Center Frequencies	40/100/250/630/1.6k/4k/10k	3%	Hz	
.....Bandwidth	2.0	3%	Oct	
.....Boost/Cut Range	±12	1	dB	
Low Cut: Frequency Range	15-250	10%	Hz	
.....Slope	12 dB/octave			
Maximum Available Gain				Input to Main Output (Line-level)
.....Instrument Pickups	86	2	dB	
.....Headphones	10	1	dB	
.....Return or Insert	16	2	dB	
Output Impedances				
.....Main Line-level	50	1%	ohms	Balanced
.....Main Mic-level	100	1%	ohms	Balanced
.....Headphones	90	1%	ohms	Unbalanced
.....Effect or Insert Sends	100	1%	ohms	Unbalanced
Maximum Output Levels				
.....Main Line-level	+22	1	dBu	Balanced into 600 ohms
.....Main Mic-level	-20	1	dBu	Balanced into 1k ohms
.....Effect or Insert Sends	+22	1	dBu	Unbalanced into 2k ohms
Headphones: Maximum Power	170	5%	mW	150 ohm headphones
	100	5%	mW	600 ohm headphones
.....THD + Noise	less than 0.015	max	%	150 mW / 150 ohms, 20-20 kHz
.....Crosstalk	greater than 80 @ 1 kHz	min	dB	60 dB, 20-20 kHz
Unit: Agency Listing				
.....120 VAC model	Class 2 Equipment UL & CSA			National Electrical Code Exempt Class 2 equipment
.....230 VAC model	CE-EMC CE-Safety			EMC directive 89/336/EEC Exempt per Art. 1, LVD 73/23/EEC
Power Supply: Agency Listing				Class 2 Equipment
.....120 VAC model	UL CSA			File no. E88261 File no. LR58948
.....230 VAC model	CE-EMC CE-Safety			EMC directive 89/336/EEC LV directive 73/23/EEC
Power Supply Input	18 VAC w/center tap	10%	Vrms	Rane RS 1 (supplied)
Maximum Current Consumption	200		mA	
Unit: Size	1.75" H x 19" W x 5.3" D (1U)			(4.4 cm x 48.3 cm x 13.5 cm)
.....Weight	5 lb			(2.3 kg)
Shipping: Size	4.25" x 20.3" x 13.75"			(11 cm x 52 cm x 35 cm)
.....Weight	9 lb			(4.1 kg)
<i>Note: 0 dBu=0.775 Vrms</i>				

SP 13 Block Diagram



Application Information

Several interesting things distinguish the SP 13 from other instrument preamplifiers.

STEREO 1/4" INPUT

Referring to the block diagram above, first note the convenience of having an input switch that automatically reverses the role of tip and ring on the 1/4" Input jack. This saves you the trouble of having to rewire your plug just because it follows one tradition or another. The Input accommodates standard electric guitar type pickups (magnetic coil designs – humbucking or otherwise). In fact *either* Input handles this type of pickup directly, or accepts the line-level outputs of outboard preamps (belt or instrument mounted).

TUNING

The fixed Tuner Output connects to the A and B Pickups Input. This Output is not affected by the graphic EQ. The Aux Output is similar except located post-EQ and has its own 'A' Output Level control. Neither of these outputs are affected by the Pickup Level controls.

EFFECTS LOOPS

Each input channel has a hard-wired Send used to process the preamplified and equalized signal. Signal can be sent completely through the effects unit with the dry/effect balance being programmed into the processor, then returned through either the Effects Return or the Expand Input. The dry signal can also be passed through the channels individual Output Level control and panned in the stereo field.

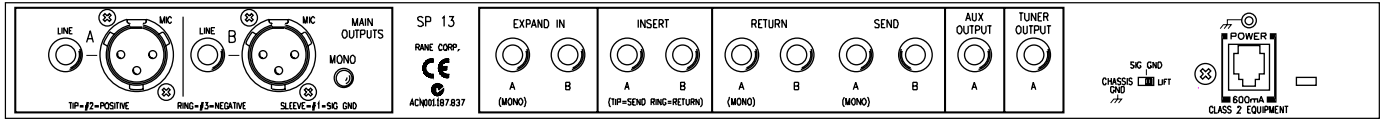
EXPANDING & OTHER INPUTS

The Expand In jacks provide a means for returning a second processed signal or other stereo audio source. There is no level control for the Expand Input, so use of a device with adjustable output is recommended.

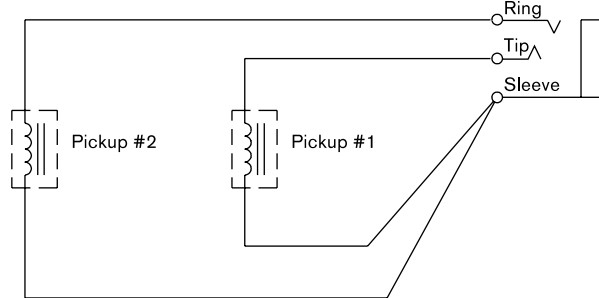
MAIN OUTPUTS

The SP 13 uses high-current cross-coupled differential line drivers for each of its balanced outputs. Normal balanced line-level applications use the 1/4" output jacks with 2-wire cable terminated with 1/4" TRS connectors. Unbalanced line-level interconnection uses standard mono 1/4" jacks without gain change or signal loss. For direct console connection the XLR outputs provide a low-noise mic-level balanced signal.

Rear Panel



Instrument wiring for two pickups



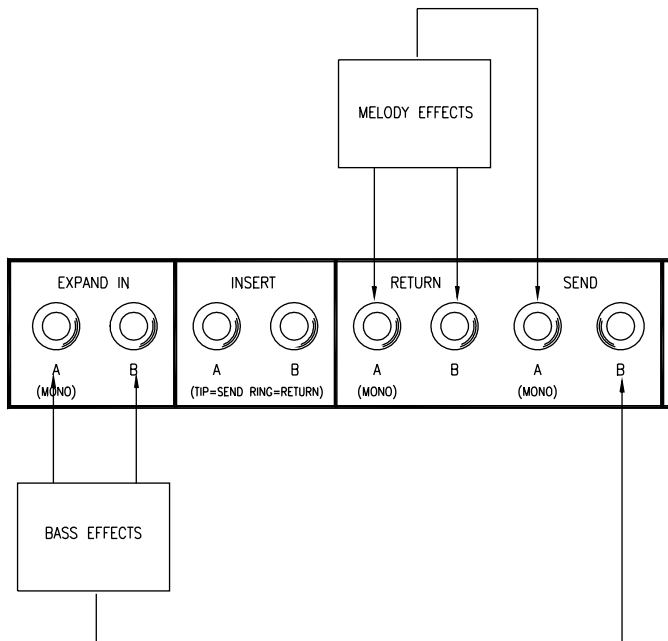
Architectural Specifications

The Inputs shall contain two channels accommodating instrument pickups terminated in a single 1/4" TRS (tip-ring-sleeve) connector. Each input shall have an overload LED, input trim control, phase invert switch, low cut filter, seven-band graphic equalizer, pan and level controls. The main outputs shall implement a stereo level control and mute switch, terminated in balanced 3-pin and 1/4" TRS connectors. An output mono switch shall be provided.

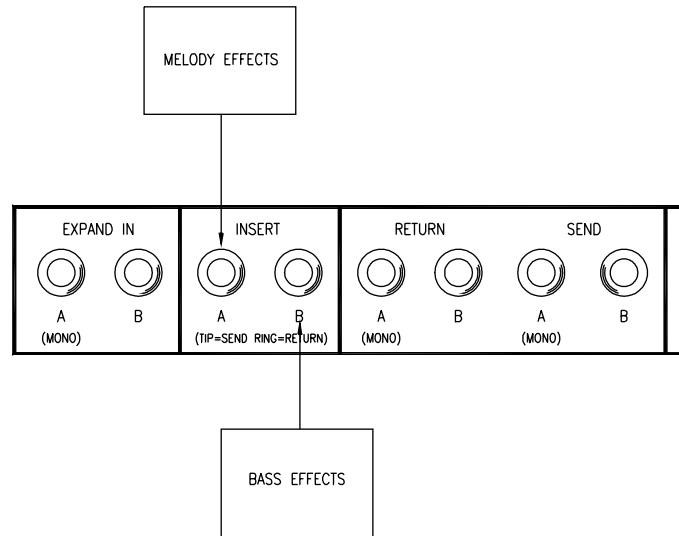
1/4" TS stereo send and return connectors with level controls shall be provided. A 1/4" TS tuner output, 1/4" aux output, 1/4" TRS insert connectors and 1/4" TS expand input connectors shall also be provided. A headphone amplifier shall be built-in with it's own level control.

The unit shall be a Rane SP 13 Stick Preamplifier.

Effects Applications



Application 1 - Standard configuration. Use separate effect units for the Melody and Bass by wiring as shown above. Use the desinated 'mono input' on the effects unit. Turn the Pickup Level off to play through only the effect processors and have them program the wet/dry signal.



Application 2 - Bi-Monoaural. In this configuration there are two separate mono signal paths, allowing connection to two separate ampifiers, one for each side. Pan the Melody to the Left and the Bass to the Right.