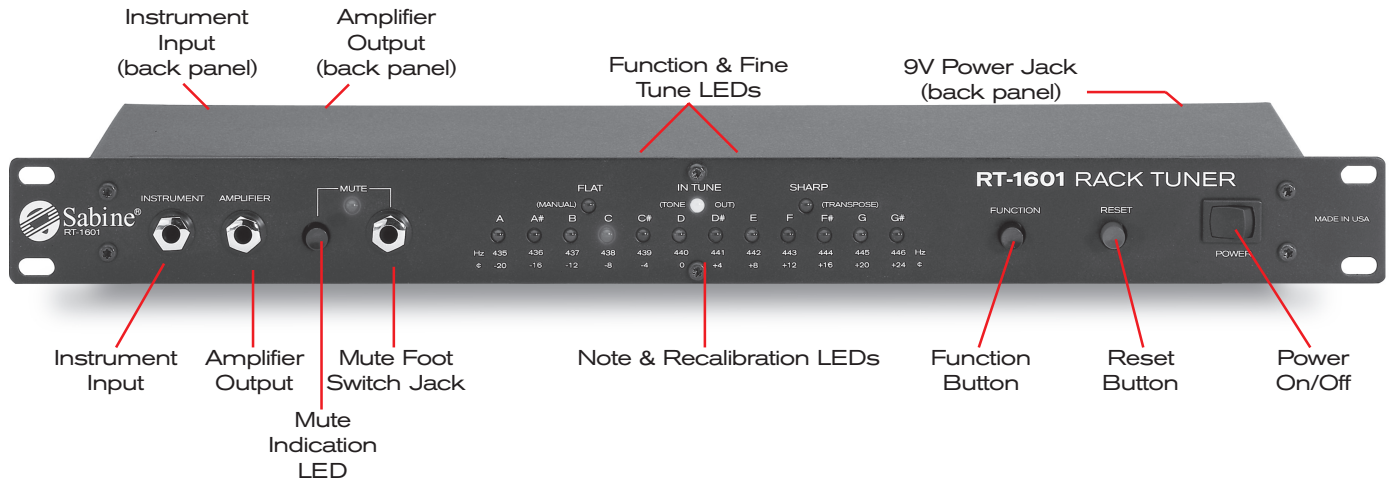


RT-1601 RACK-MOUNTABLE AUTOTUNER

CONGRATULATIONS and thank you for purchasing the Sabine RI-1601 Rack Mountable Chromatic AutoTuner. To optimize the performance of the RI-1601, please read the instructions carefully.

The RT-1601 Rack Mountable AutoTuner is Sabine's latest addition to its new generation of tuners. The RT-1601 features Sabine's latest technical advancements which extend the performance, reliability and life of the product. Advancements include panel-mounted input and output jacks and an expanded tuning range to accommodate low "B" of a five string bass. The RT-1601 displays tuning error quicker and includes Sabine's unique tuning features.



RT-1601 UNIQUE TUNING FEATURES INCLUDE:

1. Automatic recalibration to any pitch.
2. Manual recalibration to 12 precise pitches (A=435 Hz to A=446 Hz).
3. Chromatic tone generator.
4. Transpose the key of "C" to any key.
5. The notes (guitar) A B D E C are highlighted using contrasting LEDs.

OUTSTANDING FEATURES OF THE RT-1601 AUTOTUNER

AUTOMATIC NOTE SENSING

The RT-1601 automatically determines and displays each note being played. The hands free operation of this tuner allows the musician to monitor the pitch while playing.

CHROMATIC SCALE - FULL RANGE

The RT-1601 automatically senses all 12 notes in the musical scale. Its range stretches from A0 to C6 and can be used to tune all electronic musical instruments.

AUTOMATIC RECALIBRATION

The RT-1601 AutoTuner can be recalibrated to match the pitch of any reference instrument with the touch of a button.

EASY-TO-READ DISPLAY

The RT-1601 features a rugged solid-state LED display. The display provides a continuous indication of tuning error by varying the LED blink rate. The (guitar) notes A B D E G are highlighted using contrasting LEDs.

QUARTZ ACCURACY

A highly stable quartz crystal oscillator assures that the Sabine AutoTuner is much more accurate than the human ear (+/- one cent).

MANUAL RECALIBRATION

The RT-1601 can be recalibrated to any of 12 precise frequencies; many more than are available on most other tuners.

TONE GENERATOR

The RT-1601 will generate a reference tone through an amplifier for tuning by ear.

TRANPOSE TO ANY KEY

The RT-1601 can be transposed to any key, a special advantage for many hand and orchestra musicians.

MUTE FUNCTION FOR SILENT TUNING

The RT-1601 features a front-panel (or an optional foot pedal) mute function to cancel the unit's output signal. This allows the instrument to be tuned without being amplified.

RESET BUTTON

Allows the RT-1601 to be returned quickly to standard A=440 Hz without turning the power off.

TWO INPUT JACKS

The RT-1601 features two input jacks, one on the front panel and one on the back panel.

TWO OUTPUT JACKS

The RT-1601 features two output jacks, one on the front panel and one on the back panel.

9 VOLT DC ADAPTOR

The RT-1601 comes complete with a DC adaptor, but any standard 9 Volt DC adaptor can be used. If using a replacement DC adaptor equipped with a polarity switch, set the polarity switch so that the center pin of the DC adaptor jack is negative as shown below.

INSTRUCTIONS FOR TUNING

1. TURN THE POWER ON.

Wait two seconds for the green light to start blinking. The green light will blink once per second to indicate that the unit is on and ready. Electronic instruments should be connected using a standard cord ¼-inch phone jack into the input labeled INSTRUMENT. You may connect the tuner's AMPLIFIER jack to any amplifier or PA system input so that you can tune as you play.

2. PLAY A SINGLE TONE THAT YOU WISH TO TUNE.

Adjust the instrument's pitch until the desired NOTE INDICATOR light is lit. For example, if you wish to tune a "D" string on a guitar, pluck the string and tune it until the "D" note indicator light is lit. Pluck the string every second or so to keep the note "fresh" and to prevent the note from fading flat.

3. SLOWLY ADJUST THE PITCH OF THE TONE UNTIL THE GREEN "IN TUNE" LIGHT IS LIT

Note that the SHARP and FLAT indicators blink rapidly when the tone is far from being in tune and blink slower as the tone approaches being IN TUNE. Repeat steps 2 and 3 for the other notes until the entire instrument is tuned.

INSTRUCTIONS FOR CONNECTION

1. Connect the musical instrument to be tuned into the front or rear jack labeled INSTRUMENT using a standard ¼-inch mono plug.
2. Connect the amplifier or PA. system input to the front or rear jack labeled AMPLIFIER using a standard ¼-inch mono plug.
3. A floor/foot mute switch should be connected to the MUTE jack on the front panel with a standard ¼-inch mono plug.

HOW TO USE SPECIAL FEATURES OF THE RT-1601

AUTOMATIC RECALIBRATION

Most tuners on the market allow the user to recalibrate only a few Hertz from standard A=440 Hz. They prove to be almost useless if the user wishes to tune an instrument that is more than a few Hertz out of tune. The RT-1601 can be recalibrated to match any instrument by simply touching a button. Example: If you wish to tune a guitar to match an out-of-tune instrument, simply play (on your guitar) the note you wish to re-calibrate to. Wait a moment for the note to register on the tuner's display, then touch the CALIBRATE (or FUNCTION) button on the tuner. Instantly, the green IN TUNE LED will light indicating that the tuner now considers that note to be in perfect tune. Now, if you tune your guitar to the tuner, it will be in tune with the other instrument. To return the tuner to standard A=440 Hz, simply press RESET or turn the power switch to OFF and then back ON.

MANUAL RECALIBRATION

Most other tuners on the market allow the user to recalibrate manually to a very limited number of pitches. However, the RT-1601 can be recalibrated to any of 12 precise pitches. This feature will be especially useful for tuning instruments which use open tunings or any time you may wish to tune to a "natural scale" rather than a "tempered scale." Example: If you wish to recalibrate the tuner from standard A=440 Hz to A=438 Hz, press the FUNCTION button and hold until the top row of LEDs (MANUAL/FLAT, TONE OUT/IN TUNE and TRANSPOSE/SHARP) light in sequence. Release the FUNCTION button when only the (MANUAL) LED is lit. The bottom row of LEDs will begin to light in sequence (each LED represents 1 Hertz). Press the FUNCTION button when the LED corresponding to 438 Hz lights. The tuner's scale is now shifted flat from A=440 Hz to A=438 Hz. Please note that the manual recalibration scale is referenced in Hertz and in cents. There are 100 cents between any two adjacent notes in the musical scale, and one Hertz is equal to one vibration per second.) To return the tuner to standard A=440 Hz, simply press the reset button or turn the power switch to OFF and then back ON.

TONE GENERATOR

The RT-1601 will generate any reference tone over a two-octave range so that you may tune by ear. Example: First, plug the tuner into the amplifier. If you wish to hear a "C" note, press the function button for three seconds until the MANUAL/FLAT, TONE OUT/IN TUNE and TRANSPOSE/SHARP LEDs light in sequence. Release the function button when the TONE OUT LED is lit. Now the "A" LED on the bottom will light and an "A" will sound through the amplifier. Each time you press the FUNCTION button, the pitch will rise one-half tone. Press the FUNCTION button three times to generate a "C" note. You may play your electric instrument while in TONE OUT mode. You will hear your instrument and the reference pitch at the same time so that you can match the tones precisely. The volume control on your instrument will also act as the volume control of the tone generator.

TRANSPOSE

The RT-1601 can be transposed to any key. This is especially useful if you are using a fretted instrument with a capo or if your instrument is not tuned in the key of "C", such as a "B Flat" trumpet or an "E-Flat" Alto Sax. Example: If you wish to transpose the tuner for use with a "B-Flat" trumpet, press the FUNCTION button for three seconds until the MANUAL/PLAY, TONE OUT/IN TUNE and TRANSPOSE/SHARP LEDs begin to light in sequence. Release the FUNCTION button when the LED that corresponds to TRANSPOSE is lit. Now, the twelve note indicator LEDs will light in sequence. Press the FUNCTION button when "A#" (which is the same as "B-Flat") is lit. The tuner's internal scale is now shifted down one full step so that a "C" played on the "B-Flat" trumpet will register "C" on the tuner, not "B-Flat" as before transposing. To return to standard "C" tuning, simply press the reset button or turn the unit OFF and back ON.

TUNING TIPS

Most musical instruments have peculiarities that can cause annoying tuning problems. Fortunately, most of these peculiarities can be overcome by following these simple procedures.

FRETTED INSTRUMENTS

- 1. PLUCK THE INSTRUMENT ONCE PER SECOND AT THE NORMAL VOLUME WHILE YOU ARE TUNING. THIS WILL KEEP THE NOTE “FRESH”**
Plucked strings go noticeably flat soon after they have been plucked.
- 2. TUNE STRINGED INSTRUMENTS FROM A PITCH THAT IS FLAT UP TO THE PITCH YOU DESIRE.**
This procedure removes any slack in the gears of the instrument's tuning heads. If you tune from SHARP to IN TUNE, the gears will slip as you play and the instrument will go flat.
- 3. IF YOU HAVE DIFFICULTY GETTING A NOTE TO REGISTER ON THE TUNER, TRY TOUCHING (MUTE) THE OTHER STRINGS LIGHTLY TO STOP THEIR VIBRATIONS.**
This will eliminate any extraneous overtones that may disturb the tuning.
- 4. USE GOOD STRINGS.**
Old strings tend to lose their uniformity and will not vibrate evenly.
- 5. ALL SOURCES OF FRICTION WILL CAUSE PROBLEMS.**
For example, if the slot in the instrument's nut is too tight, the string will be pulled flat as it is played. A tight nut (or capo) will cause the string's pitch to change in steps rather than evenly.
- 6. AVOID PRESSURE ON THE INSTRUMENT WHILE TUNING.**
Even moderate pressure on the neck of a guitar will cause a noticeable change in pitch. Also, press the strings straight down to the fingerboard. Bending the strings sideways is very common, especially on difficult chords, but causes the strings to be pulled sharp.

A NOTE FOR ADVANCED FRETTED INSTRUMENTALISTS.

All fretted instruments, and most other instruments, are constructed to play an “even-tempered scale.” Sabine tuners are also calibrated to this scale. The “even-tempered scale” places equal tonal spacing between all notes in the scale so that the musician will not have to retune to change keys. A disadvantage, however, is that the third note of the scale sounds a little flat (14 cents, to be exact). For example, when playing in the key of “C”, the “B” will sound flat. If you tune the “B” string so that it sounds correct in an open “C” chord, other chords using the “B” string will sound out of tune. The musician may choose to optimize the tuning for a particular key or use the tempered scale. Much depends on the musician's style, but generally, it is best to tune exactly as your Sabine tuner indicates.

SPECIFICATIONS

Dimensions:	1 rack space (19" W x 4.5" D x 1.75" H)
Weight:	3.75 lbs
Scale:	Even-tempered, 12 notes per octave
Range:	7 octaves, chromatic (A0 to C6)
Accuracy:	+/- 1 cent (quartz crystal)
Auto-Recalibration:	To any pitch
Manual Recalibration	
Range:	12 ea. 1 Hz steps A=435 Hz to A=446 Hz
Tone Out:	2 octaves, chromatic
Power:	9VDC @ 225mA. Use the 9VDC 300mA 12OVAC adaptor supplied
Input:	2 ea. ¼-inch (one on front panel, one on back panel), connected in parallel - 250K Ohms Impedance – (max input 5V peak to peak)
Output:	2 ea. ¼-inch (one on front panel, one on back panel), directly connected to both inputs unless MUTE is active

Specifications are subject to change without notice.

CONTACT MICROPHONE (OPTIONAL)

The Sabine CM-1 Contact Microphone makes tuning an acoustic instrument as easy as tuning an electric guitar. It has a removable rubber suction cup to stick the mic directly onto the instrument. The CM-1 is ideal for tuning an acoustic guitar in a noisy room or for tuning instruments that have very short tones like banjos or mandolins. Ask your dealer for the Sabine CM-1 Contact Microphone

LIMITED WARRANTY

If your RT-1601 AutoTuner fails because of a manufacturing defect within ONE YEAR from the date of original purchase, please return, postage prepaid, to SABINE for repair or replacement with a new or reconditioned product. This warranty does not cover damage caused by accident or misuse. You must include your full name, address, proof of purchase and the nature of the defect.

This warranty is in lieu of all other warranties, expressed or implied. This warranty gives you specific rights which vary from state to state. Applicable in the USA and Canada only.

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